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Grasshoppers Pose Serious Threat in West and Midwest

Mormon Crickets To Be Troublesome In Western States

WASHINGTON — Western and Midwestern ranchers and farmers face possible serious damage from grasshoppers in 1957, the U.S. Department of Agriculture reports. Mormon crickets are also expected to be troublesome in half a dozen western states, particularly Montana, Nevada and Wyoming, the department says.

Weather, as always, can alter the present grasshopper and Mormon cricket outlook, based on surveys made in the latter part of 1956. A further survey to be conducted this spring should provide more accurate information on which plans for control of these pests can be based.

The weekly Cooperative Economic Insect Report, released by USDA's Agricultural Research Service, carries a color map showing the extent and severity of grasshopper infestations forecast for 1957.

More than 22 million acres of rangeland in 19 western and midwestern states are threatened with moderate to very severe grasshopper damage.

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NAC Meeting to Stress Technical Manpower Need

WASHINGTON — The need for more technically trained men and women to speed progress in agriculture will be highlighted at the spring meeting of the National Agricultural Chemicals Assn. in San Francisco, March 6-8. The meeting will be held in the Fairmont Hotel.

The program also will probe into the economics of agriculture, with discussions by top leaders on the importance of financing and credit to agricultural progress, and on the outlook for return on investment in the agricultural chemicals industry.

Where growers and industry stand under the Miller Amendment to the Food, Drug and Cosmetic Act will be discussed by representatives of government agencies.

Specific topics on the program are:

March 6—president's address on the outlook for the agricultural chemicals industry, Fred W. Hatch, NAC president and manager, agricultural chemical division, Shell Chemical Corp.; "Men for Agricultural Progress," Dr. S. B. Freeborn, provost, University of California, Davis; "Money for Agricultural Progress," Earl Coke, vice president, Bank of America, and former assistant secretary of agriculture, and "Credit for Agricultural Progress," J. A. Walker, general credit manager, Standard Oil Company of California.

March 7—will be devoted to association committee meetings and conferences.

March 8—Fred Shanaman, president, Pennsylvania Salt Manufacturing Company of Washington, speaking on the outlook for return on investment in the agricultural chemicals industry; discussion by representatives of government agencies on where growers and industry stand today under the Miller Amendment; a report on the latest developments in forest pest control, and a graphic presentation of the current work of the NAC.

Conservation Program for Great Plains Included in President's Budget Message

WASHINGTON — The President's budget did no disservice to the programs in which the fertilizer industry ordinarily has participated. In fact, with the inclusion of the new Great Plains conservation program, the total amount of money has actually been increased.

This Great Plains state program —the new 20 million dollar program over an indefinite period— covers the Dakotas, Colorado, Kansas, Montana, Nebraska, Oklahoma, Texas and Wyoming. The program is over and above the ACP and the soil bank.

It envisions transfer of permanent use of acres in those states to other purposes than field crops. It would encourage use of these lands for cover crops and vegetation but at the same time would permit grazing on those lands within approved USDA practices.

The old ACP program again gets its usual 237 million dollars authorization plus unexpended previous authorization.

The soil bank recommendation in the budget amounts to about 1.2 billion dollars of which 750 million will be available for 1957 crops under the acreage reserve program for wheat, corn, cotton, tobacco, peanuts and rice. Such contracts with USDA only cover single crop years.

For the conservation reserve program for those crops there is recommended appropriations of nearly 500 million dollars for long term contracts to take field crop land out of production. This phase of the program is little more than a land rental proposal without any permission to the owner to use the land under the current provisions of the law for other purposes.

Rare indeed is the government official who greets a budget cut with enthusiasm. But this is the condition in the Pest Control Section of USDA Agricultural Research Service where a budget item for pest control has been reduced

(Continued on page 21)

Farm Chemical Resources Lets Bid For Potash Shaft

DENVER—Farm Chemical Resources Development Corp. has awarded a contract to MacKenzie & Whittle of Dallas for digging a shaft into its potash deposits near Carlsbad, N.M.

Officials of Farm Chemicals Resources said that exploratory work at the deposits has been completed. An ore body underlying about 15,000 acres has been established. E. F. Kindsvater, president and general manager, said.

The firm is owned by Kerr-McGee Industries of Oklahoma City, Phillips Petroleum Co. of Bartlesville, Okla. and National Farmers Union, which has headquarters here.

A refinery for production of potash and other byproducts and possibly a second shaft are scheduled for construction. The firm expects an output of 1,000 tons of finished products daily. Completion is expected in 1958.

Coke-Oven Ammonium Sulfate Output Drops

WASHINGTON — Production of coke-oven ammonium sulfate in November totaled 155,376,409 lb., a decrease from 162,721,200 lb. in November, 1955, the Bureau of Mines has reported. Sales last November amounted to 146,731,962 lb., a gain over 138,921,600 lb. in November, 1955. Stocks on hand at the end of last November were 415,600,323 lb., compared with 407,410,694 lb. at the end of November, 1955.

Inorganic Chemical Production Declines

WASHINGTON—November output of synthetic anhydrous ammonia totaled 263,506 short tons, compared with 267,078 short tons in November, 1955. Production of ammonium nitrate, original solution (100% NH_4NO_3) amounted to 172,252 short tons, down from 183,449 short tons in November, 1955. Output of phosphoric acid (50% H_3PO_4) also declined—from 298,313 short tons in November, 1955 to 279,192 short tons last November.

Mississippi Conference Hears Recommendations for Insect Control, Research Reports

STATE COLLEGE, MISS.—An announcement of the cotton insect control recommendations and warnings against the careless handling of insecticides, highlighted the third annual Mississippi Insect Control Conference at Mississippi State College, Feb. 10-11.

A much greater use of phosphates for boll weevil control was predicted where heavy infestations build up in the 1957 crop. While these materials were recommended, it was emphasized that they be used carefully and in strict accordance with instructions. A recommendation of the conference called for all insecticide labels to contain not only suggested uses of a material, but also a "do not use for . . ." warning. All precautions should be specified on labels, it was indicated.

Insecticides recommended for boll weevil control in Mississippi for 1957 include aldrin, BHC, calcium arsenate, dieldrin, endrin, toxaphene, heptachlor, malathion, guthion and methyl parathion.

Dr. M. E. Merkl, USDA entomologist at the Stoneville Branch Experiment Station, stated that guthion gave outstanding results in boll wee-

(Continued on page 24)

Over 200 Attend Shell Chemical Nematode Session

By JAMES W. MILLER
Croplife Editorial Staff

NEW YORK—The winter's worst weather failed to dampen attendance at Shell Chemical Corp.'s nematology workshop which opened here at the Hotel Biltmore Jan. 16. The nematode discussions attracted over 200 persons to the open meeting which was sponsored for formulators, dealers and allied personnel by Shell.

A general description of nematodes was given by the meeting's opening speaker, W. R. Jenkins, assistant professor of plant pathology, University of Maryland, College Park. He referred to nematodes as being the most numerous of all animals on earth, and pointed out that

(Continued on page 25)

Profits Up 13%, U.S. Borax and Chemical Reports

NEW YORK — An increase in profits of more than 13% for the fiscal year ended Sept. 30, 1956, as compared to the like period in 1955 was reported by United States Borax & Chemical Corp. in its first annual report to stockholders.

James M. Gerstley, president of the company that was formed July 2, 1956, by the merger of United States Potash Co. and Pacific Coast Borax Co. of Nevada (an affiliate of Borax Holdings, Ltd., an English company), reported the record high profits that resulted from a 12% increase in sales.

Pro forma consolidated sales for the year ended Sept. 30, 1956 were $50,493,900 and profits after all charges were $6,778,080. Comparable pro forma combined sales of the predecessor companies in the previous fiscal year were $45,027,000 and combined profits were $5,988,000.

After pro forma provision for dividends on preferred stock for the full twelve-month period, profits were equivalent to $1.47 per share on the 4,175,000 common shares of United States Borax & Chemical Corp.

Mr. Gerstley also reported that the company's extensive program for new and substantially increased production capacity, and for modernization of facilities at Boron, Cal., including conversion to open pit mining, is progressing satisfactorily. This program, commenced in 1955 and estimated to cost approximately $20,000,000, is expected to be completed and the enlarged plant in operation in July, 1957.

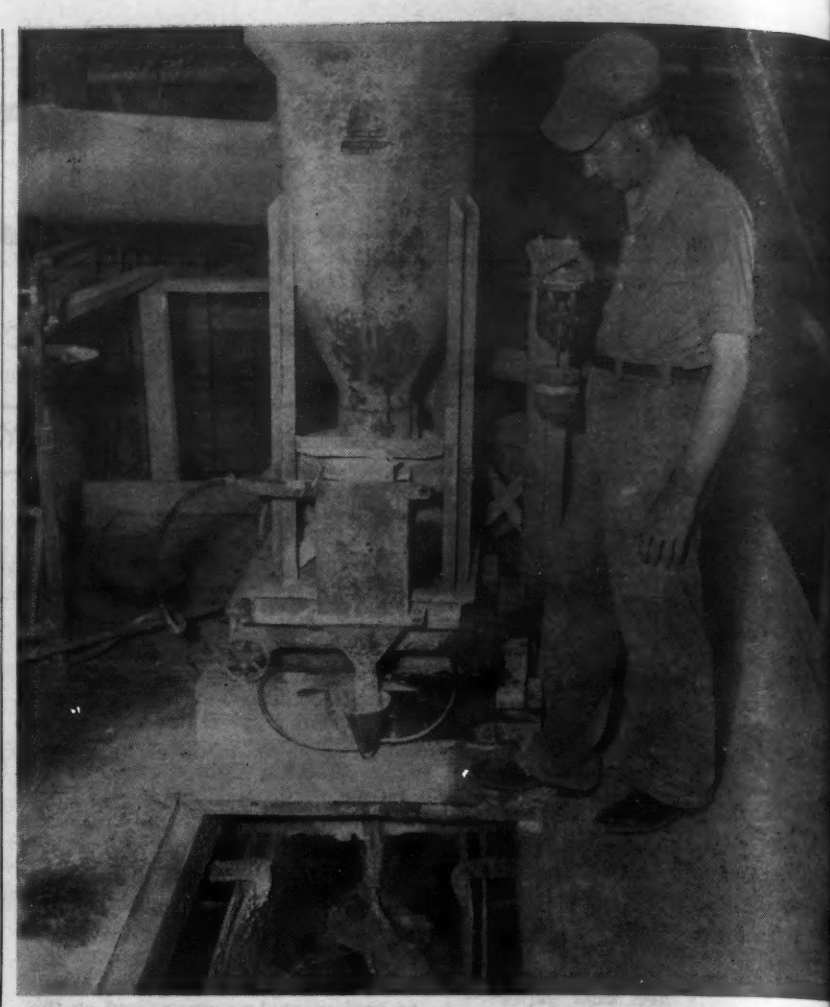
The use of open pit mining will permit recovery of virtually the entire body, thereby effecting a major increase of available ore reserves, Mr. Gerstley said. Only a portion of the ore can be economically extracted and processed with present mining methods and with existing plant facilities, which, Mr. Gerstley reported, were operated at capacity throughout the past year.

Construction of a new $1,000,000 laboratory at Anaheim, Cal., where the company's research activities will be centralized, is expected to be completed in April, 1957. The company plans to treble its research effort, and expects to be spending for this purpose at an annual rate in excess of $1,000,000 by the end of 1957. The company has available sufficient funds to cover the full cost of this expansion and construction program.

R. H. Fisackerly Named Sales Manager By Mississippi Chemical

YAZOO CITY, MISS.—R. H. (Bob) Fisackerly, Yazoo City, Miss., has been elevated to the position of general sales manager for Mississippi Chemical Corp., Yazoo City, made vacant by the recent death of Ward F. Seat, according to an announcement by Owen Cooper, executive vice president. Mr. Fisackerly assumed his new duties Jan. 1.

Mr. Fisackerly graduated from Mississippi State College with a B.S. in agricultural education and received his M.S. from Mississippi State in soils and economics. He has been associated with Mississippi Chemical since its organization in 1948 having participated in the initial stock sales program of the company. He formerly served MCC as field representative and later as director of field services.



SUPERPHOSPHATE FOR IMMEDIATE USE—Pilot plant for production superphosphate for immediate ammoniation and mixing. View shows continuous mixer (funnel near right foot of operator) and superphosphate below discharging to conveyor. TVA photo.

TVA Tells How "Quick" Superphosphate Is Manufactured Via Continuous Mixer

WILSON DAM, ALA.—Further details on the new TVA process for making superphosphate suitable for immediate use in mixed fertilizers, have been announced by TVA. The original announcement regarding the new process was made in December, (Croplife, issue of Dec. 24, page 1) at which time it was reported that pilot plant experiments had indicated that the new technique could be applied in many fertilizer plants without extensive modifications of existing equipment.

In its later description of the process, TVA says that superphosphate made by the new method contains excess acid, and for this reason is not suitable for use except in fertilizer mixtures that are to be ammoniated. The "quick" superphosphate is suitable for immediate ammoniation and mixing. Ammoniation neutralizes the excess acid and results in the production of fertilizer having good physical properties, TVA says.

In the TVA work, phosphate rock was pulverized finer than for standard superphosphate production. The particle size of the rock used in the pilot plant was 90 to 95% minus 200 mesh, whereas in regular superphosphate production rock of about 80% minus 200 mesh is used. The acid was diluted more than in normal practice, and an excess was used. Whereas when making superphosphate by conventional methods acid of 70% concentration is used, in the TVA work acid concentrations as low as 56% were tried although the best concentration was found to be about 60%. Normally, an acidulation ratio of about 0.98 is used by industry; in the TVA work, acidulation ratios of about 1.10 were used.

Acidulation was carried out in a TVA continuous mixer. After considerable investigation, conditions were found that enabled production of superphosphate ready for ammoniation in one hour. About 95% or more of the phosphate was converted to a form available to growing plants. The fresh superphosphate then was used in the production of several grades of granular fertilizers in the TVA continuous ammoniator-granulator.

The overacidulated superphosphate holds additional nitrogen when it is neutralized by ammoniation. Also, the excess acid helps to make a better mixed fertilizer by increasing water solubility of the phosphate and promoting granulation. The proportion of excess acid is no greater than the equivalent amount of ammonium sulfate in many fertilizer grades. Therefore, in most cases, it does not increase the cost.

Some additional cost would be incurred in making the quick superphosphate, but the increase probably would not be great. Most of the increase would be due to finer grinding of phosphate rock, and this additional cost is estimated by rock suppliers at about 40¢ a ton.

Fertilizer producers with superphosphate mixing units should be able to adapt the new process, where desirable, in their plants without extensive modification of equipment. The small increase in cost because of finer rock grinding should be more than offset by savings in reduced inventories and advantages of improved processing methods.

Work thus far has been mainly on ordinary superphosphate, but TVA is now studying application of the process to the production of triple and enriched superphosphates.

John S. Sullivan In New Monsanto Post

ST. LOUIS — The appointment of John S. Sullivan of St. Louis as special sales representative for agricultural products in Monsanto Chemical Co.'s Overseas Division was announced here by George S. Hanaway, division director of marketing.

Mr. Sullivan, whose headquarters are to remain at St. Louis, will travel extensively in Mexico, Central America, Hawaii and other important agricultural areas. He will be concerned with sales of Monsanto's entire line of products for the agricultural industry and will work closely with the company's representatives in the assigned areas. He will report to K. Stelloh, director of sales.

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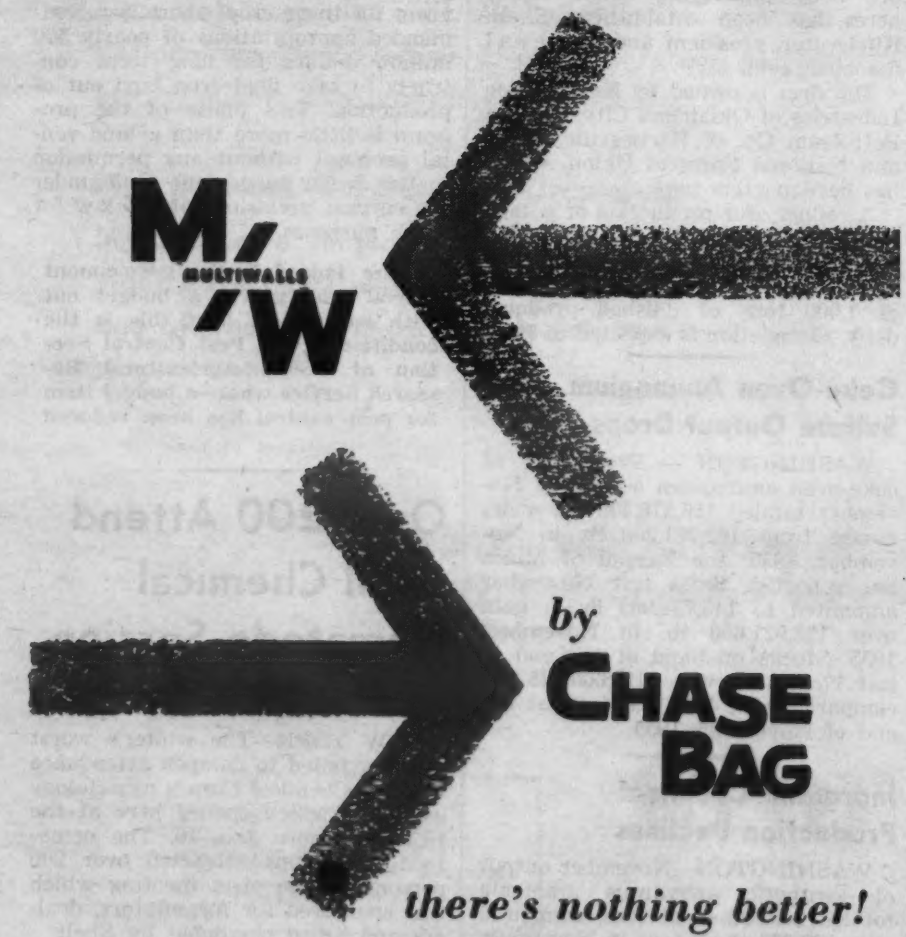

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oost in Livestock roduction Could rim Crop Surplus

ST. PAUL—Effective promotion of production and marketing of estock products could eliminate p surpluses. By shifting 10% of land now used for food and in- trial crops to raising livestock, erican farmers could balance d production and consumption, a ding economist said recently.

Speaking at Farm and Home Week the University of Minnesota, Dr. rrell De Graff, food economist m Cornell University, Ithaca, Y., said that if this shift took ce, "Output of food and industrial ps would be reduced by 10%, and estock production would be in- eased only 2%."

With periodic large meat supplies d low livestock prices, many per- ns would not be looking for an mediate increase in production. t Dr. De Graff's figures show the ssibilities in more output and ofitable marketing of livestock.

"Each person would be eating the oduct of a little more of our land sources, our purpose of 'expand- g our market' would have been ac- mplished, and the present excess pacity of American agriculture uld have been absorbed," Dr. De aff said.

That, he said, would be "a func- oning of the principle of elasticity our food supply, reestablishing a lance between production and con- mption at a time when the volume our output is over-expanded.

"Livestock—the natural shrinkers, cause they concentrate 7 lb. to 1 .—are the only means by which is essential balance can be reestab- hed without placing farmers under tolerable production controls."

Solutions to the farm income prob- m, declared Dr. De Graff, "are not be found in crop price supports.

"Over the past 35 years, a modest % increase in livestock production uld have eliminated all the crop uantities that have been called sur- uses.

"And 2% more livestock products er most of these years—or years ead of us—could move into the arket without serious price disad- ntage to producers."

dmund H. Fallon Gets ew Responsibilities t Cooperative G.L.F.

ITHACA, N.Y.—Edmund H. Fal- n, assistant general manager of ooperative G.L.F. Exchange, will ead a drive to increase the coopera- ve's volume in 1957.

Announced at a conference Jan. 4 at G.L.F. headquarters in Ithaca, e responsibility is part of his new osition as assistant general man- ger in charge of operations, C. N. lcox, general manager, said. Mr. lcox now will devote his attention rimarily to the fields of policy, re- tions with the board of directors nd public relations.

"The assistant general manager ow has full authority and respon- bility for all operations," Mr. Sil- ox said. Mr. Fallon will continue in s position as director of wholesale rvices.

A native of Westville, N.Y., Mr. allon joined G.L.F. in 1931 after raduating from Clarkson College of echnology. He served as a store anager and district manager be- ore setting up the G.L.F. petroleum ivision in 1938. He managed the di- ision until named director of edu- ation in 1943. He moved to G.L.F. arm Service in 1945 and in 1953 ecame director of wholesale serv- es.

New Mexico Farms, Rangeland Face Heavy Hopper Threat

STATE COLLEGE, N.M.—Grasshoppers could cost New Mexico farmers and ranchers $4½ million in 1957, according to recent infestation predictions, John J. Durkin, New Mexico A&M College extension entomologist, said recently.

Dollars-and-cents-wise, the pests will probably be more expensive to farmers than ranchers, but area-wise, they pose a serious threat to more than 2½ million acres of rangeland. Extent of damage will depend on the severity of the prolonged drouth and growth of range forage.

Infestations in 1956 were almost as widespread, but control operations in some areas helped to hold crop and rangeland damage to a minimum, Mr. Durkin said.

For example, treatment of 672,000 acres of range in Colfax, Union, Lea, and Lincoln counties in 1956 resulted in a 95% kill. Ranchers paid $118,300 for the control work, which will save them more than 1½ million dollars worth of range forage. Similar amounts were paid by the state and federal governments who share in the cost of the control operations.

Perennial trouble spots in range counties are the San Augustine Plains area of Catron and Socorro, and rangeland in Union, Colfax, Curry, Quay, Lea and Lincoln counties. According to a grasshopper survey completed this fall by G. F. Fulkerson, Albuquerque, area supervisor, the U.S. Department of Agriculture Plant Pest Control Branch, these areas will again have their share of hoppers in 1957.

Farming areas which will probably suffer heavy crop losses unless hoppers are kept under control are Mora, Taos, Bernalillo, San Miguel and Socorro, Mr. Durkin said. The pests did extensive damage in these areas in 1955 and 1956.

Control work on cropland as well as rangeland, needs to be organized on an area-wide basis, the extension entomologist said. While there is no state or federal aid available to farmers as there is to ranchers in infested areas, prevention of crop losses more than justifies the expenditure for insecticides and their application. Mr. Durkin estimates that control of hoppers on about 31,000 acres of farmland in New Mexico last year saved farmers about $350,000.

Crag Herbicide-1 Gets New Designation

NEW YORK—Carbide and Carbon Chemicals Co., a division of Union Carbide and Carbon Corp., has changed the designation of its Crag Herbicide-1 to Crag Sesone. The firm said that the word Sesone was coined to help identify sodium 2,4-dichlorophenoxyethyl sulfate, and that the change was made to cooperate with the nomenclature sections of the Weed Society of America and the American Standards Assn.

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Progress in Pest Control Work Summarized by USDA

WASHINGTON — Encouraging gains were made during 1956 in the protection of farm crops from destructive plant pests, the U.S. Department of Agriculture reports.

In regulatory programs aimed at preventing the entry of insects and diseases of plants into the U.S. and destroying those already here, federal responsibility is carried out by two units of USDA's agricultural research service—the plant quarantine branch and the plant pest control branch. Programs of these branches are often undertaken in cooperation with state or foreign agencies.

On guard against imported plant pests and diseases, at the nation's ports of entry and border stations, is inspection and quarantine. During fiscal 1956, plant quarantine inspectors intercepted some 17,500 shipments containing such plant pests and 244,000 lots of contraband plant materials. They inspected more than 97,000 airplanes and 46,000 ocean vessels, in addition to more than 100,000 freight cars and 17 million vehicles crossing U.S. borders.

There is heartening evidence that infestations of some dangerous plant pests can be eradicated, rather than only temporarily controlled. At the beginning of 1957, workers were well along with the eradication of pests such as the Mediterranean fruit fly, Khapra beetle and Hall scale. A good start has been made in the direction of ultimate eradication of the gypsy moth.

Invasion of the U.S. by the Mediterranean fruit fly—for the first time since 1929—was the most pressing problem facing plant pest control officials during 1956. In the Medfly eradication program—begun shortly after the insect was discovered in Florida in April—more than three-quarters of a million acres were treated by the year's end. Counting repeated treatments, the aggregate number of acres sprayed totaled 5,802,953 on Dec. 1, 1956. Even though victory is in sight, much control work continues to be necessary on this insect. The job is complicated by the fact that the Medfly attacks a hundred or more fruit and vegetable crops.

As a result of work in the khapra beetle eradication program in the West during 1956, it is expected that the major clean-up phase of the program will be completed by June 30, 1957. Fumigation with methyl bromide is depended upon for eradication of this pest. Gas-tight tarpaulins large enough to encase grain storage buildings—some comprising as much as 5 million cubic feet—are used. Hundreds of tarpaulins are clamped together for these huge jobs.

Fumigation methods were developed several years ago in the battle against Hall scale—a pest that attacks many different fruit trees. Fumigants penetrate cracks and crevices of the bark of infested trees.

The 1956 gypsy moth campaign marked the beginning of an all-out effort to eradicate this insect from New England and Michigan. Nearly a million acres were sprayed during the past year in the fight against this destructive forest pest.

The perennial campaign against grasshoppers — one of the country's most stubborn pests—saw some 2 million acres of rangeland in 10 western states treated with insecticides.

A serious disease of corn, caused by a parasitic plant known as witchweed, has been found in the Carolinas. Witchweed attacks the roots of corn plants, causing yellowing of the foliage and severe stunting. It is also known to infest sorghum and other plants of the grass family. In fields planted to corn or sorghum, heavy infestations of the pest may result in complete crop failure. Plans are being made for witchweed control work in the coming season. If this parasitic weed should become entrenched in the U.S. it might be more devastating than the European corn borer, which costs farmers about $100 million yearly. Witchweed is a scourge of corn and sorghum in South Africa. Although it is destructive and difficult to eradicate, USDA officials emphasize that it is by no means uncontrollable.

In the domestic plant pest detection program, interest in survey and trapping of insects is increasing rapidly as a guide to control. Such a program could better show the patterns of infestation and permit more accurate forecasts of outbreaks of insects and disease. Foreign insect invaders that escaped interception could be spotted sooner than is possible today.

Development of better insect lures and traps is making this plan of defense more practical. More than 700 persons voluntarily contributed information on insects and about 125 cooperators reported on plant diseases during 1956. These reports are included in summaries issued regularly by the Department's Economic Insect Survey and the Plant Disease Warning Service. They are used in formulating control plans and distributing needed materials in areas where serious outbreaks might be expected.

Department officials point out that farmers take care of most of their own plant disease and insect problems, using research information supplied by Federal, State, and industrial research agencies. Farmers can better serve all agriculture, as well as their personal interests, by always reporting outbreaks of new diseases or insects or any abnormal growth or yield condition of their crops. Diseased plants or living insects should not be moved from affected fields. The county agent or state regulatory official should be notified, USDA urges.

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Wisconsin Pacemakers Plan February Meeting

MADISON, WIS. — The Pacemakers Corn Club and the lime and fertilizer dealers of Wisconsin will meet at the University Memorial Union Theater on the University of Wisconsin campus Feb. 4, it has been announced by John T. Murdock, extension specialist and member of the Pacemaker committee.

Subjects for discussion will include reports on research in soils, the role of trace minerals in fertilizer usage, and the importance of lime in fertility maintenance. Speakers will include a number of University of Wisconsin agronomists, O. J. Attoe, K. C. Berger, L. E. Engelbert and C. J. Chapman.

W. R. Allstetter, vice president of the National Plant Food Institute, Washington, D.C., will address the group on "The Fertilizer Industry's Role in Wisconsin Agriculture."

A luncheon program is scheduled for the noon hour, during which time certificates will be awarded for outstanding corn growers. H. L. Ahlgren of the University will have charge of this portion of the program.

J. T. Murdock will report on the 1956 Pacemaker results and will announce plans for 1957's program. A panel discussion on corn growing will complete the program. K. C. Berger will be leader, and the panel members will include N. P. Neal, D. R. Peterson, O. I. Berge, A. E. Peterson, E. H. Fisher, and E. K. Wade.

David H. Sparks

GEIGY APPOINTMENT — Geigy Agricultural Chemicals, Ardsley, N.Y., has announced the appointment of David H. Sparks as southeastern technical field representative. Mr. Sparks, a native of Mississippi, received his B.S. degree in agriculture in 1954 and his M.S. in entomology in 1955 from Mississippi State College, following army service. While attending college he was employed by Geigy as a technical field assistant during the summer field seasons of 1953 and 1954. Prior to joining the Geigy organization this year he was employed by the Olin Mathieson Chemical Co. Mr. Sparks will make his headquarters at Leland, Miss., where he will continue to reside with his wife, son, and twin daughters.

Richfield Chemical Building Complete Liquid Fertilizer Plant

SYCAMORE, ILL. — Richfield Chemical Co. is building a complete analysis liquid fertilizer plant here, Howard F. Kahn, president, has announced.

The plant, with capacity of more than 200 tons a day, is expected to be in operation by mid-March, Mr. Kahn said. The plant will manufacture and stock a few standard ratios and will custom make other grades to meet special requirements.

The firm will directly serve farmers within its own retail area, and will work through established franchised dealers outside that area, Mr. Kahn said.

Jack von Mettenheim, who has been with International Minerals and Chemical Corp. several years, is vice president and general manager of Richfield Chemical. Fred Hoff, formerly of International, has joined the firm as special sales representative.

New Hydrogen Plant

LOUISVILLE—Koppers Co., Inc., has authorized the Girdler Co., Louisville, to start engineering work on a hydrogen plant for the U.S. Steel Co.'s multi-million dollar expansion program at Clairton, Pa. Girdler is a division of National Cylinder Gas Co., Chicago.

Arthur M. Mohler Joins Chase & Co.

SANFORD, FLA. — Arthur M. Mohler has been appointed manager of the fertilizer division of Chase and Co. of Sanford. The new appointee was formerly vice president of Lebanon Chemical Corp., Lebanon, Pa., and has had 20 years of experience in production, sales and application of agricultural and garden supply chemicals and fertilizers.

EXAS CONFERENCE TOLD

Nitrogen Would Be in Short Supply If Farmers Used All They Could Apply Profitably

COLLEGE STATION, TEXAS—tendants at the recent Texas Fertier Conference were assured by eakers that materials this year will in good supply, although it was inted out in one address that if rmers should begin using the nounts of nitrogen that they could ply profitably, there would not be ough to go around.

Some 170 persons attended the wo-day meeting which is sponsored y the agronomy department of exas A&M College. Flake L. isher of the sponsoring depart-ent, served as chairman.

The supply situation was discussed a number of speakers, all of whom reed that no shortage is in prospect r this year. Speakers asserting that ere is "plenty" of nitrogen and her plant foods included C. L. Peek, merican Cyanamid Co., Dallas; B. Henderson, Campbell's Fertilizer ., Inc., Houston, and Sherman ark, Texas Gulf Sulphur Co., Hous-n.

It was Dr. J. F. Fudge, Texas state emist, who declared, "If we moved e amount of nitrogen which farmers uld use profitably, we'd be in short pply."

A report was made by Tom Wright, exas Farm Products, Nacogdoches, exas, of findings and recommenda-ons of the Galveston Committee of hich he was a member. Drawing ost attention from the conference as the recommendation that a mini-um of 24 units of plant food be es-blished for mixed fertilizers. Pur-se of this, it was pointed out, would to reduce the amount of carrier d cut down expenses of transporta-on.

Chairmen for the sessions were r. J. S. Rogers, head of the agron-my department, and Dr. Guy W. driance, head of the college's de-artment of horticulture. Dr. J. B. age, dean of the graduate school, as toastmaster during the ban-uet, and Dr. J. C. Miller, dean of he school of agriculture, welcomed he group to the campus.

Dr. Russell Coleman, executive vice esident of the National Plant Food stitute, discussed the soil bank pro-am for 1957 as it applies nation-de, and I. H. Lloyd, agricultural abilization and conservation, USDA, llege Station, described the Texas ase of the program.

During the afternoon session of the st day, various members of the xas A&M College System discussed e interrelationships of fertilizers, ter and good management prac-es in Texas agriculture. They were L. Godfrey, M. E. Bloodworth, A. Caldwell, M. K. Thornton and E. Trew, all of the agronomy depart-nt; M. E. Jensen and Alex Pope of e Amarillo substation; D. E. Long-cker of the Ysleta substation, and R. Hildreth of the department of ricultural economics and sociology.

H. E. Hampton of the agronomy partment showed slides and dis-ssed Pakistani agriculture, and the v. R. D. Longshore, pastor of the rst Baptist Church in Bryan, show-slides and discussed Alaskan agri-ture following the banquet.

During the second day's meeting, . D. Morgan of the American Po-sh Institute spoke on "Plant Tis-ue Testing and Fertilizer Recom-mendations." Three members of the horticulture department discussed fertilization and irrigation programs for fruit and vegetable production. They were D. R. Paterson, A. H. Krezdorn, and E. E. Burns.

H. E. Rea of the agronomy department spoke on "Chemical Weed Control in Field Crops," D. M. Martin of the entomology department spoke on "Control of Insects in Field and Vegetable Crops," and H. E. Smith of the department of plant physiology and pathology spoke on "Use of Fertilizers in Preventing Plant Diseases."

Croplife Want Ads... Get Results

Systemics Control Green Peach Aphids In Greenhouse Tests

DAVIS, CAL.—Successful control of green peach aphids on sprouting potatoes has been achieved in greenhouse tests by Oscar G. Bacon, associate professor of entomology, University of California, Davis.

Potato plants from seed parts treated with systemic insecticides remained aphid-free up to 80 days, reports Mr. Bacon. If field tests next spring are as successful, he said, the spread of leaf roll virus by these pests may be greatly reduced in potato fields. Also, tests will have to be made to find out if there is any residue in the potatoes at harvest time.

Mr. Bacon applied the chemicals in three ways in the tests: some potato pieces were tumbled with a mixture of charcoal and insecticide, other pieces were dipped in an emulsion, and others were planted in soil treated with granular forms of the chemicals.

Pieces dusted thoroughly with the charcoal-insecticide mixture produced plants that remained nearly 100% aphid free during the tests. Plants grown in treated soil were almost as free of aphids.

Systemic insecticides delayed sprouting of the potato seed pieces from one to two days in the greenhouse, where they were growing under the best conditions, said Mr. Bacon.

Field trials are planned for this spring in the San Joaquin Valley potato-growing areas, where the aphids are a major pest in the spring before the warmer weather sets in.

ALABAMA SHIPMENTS

MONTGOMERY — Alabama fertilizer shipments in November totaled 33,018 tons, compared with 38,460 tons in November, 1955, according to the Alabama Department of Agriculture and Industries.

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Agricultural Aircraft Assn. Plans Meeting

SAN FRANCISCO—Aircraft safety, legislation, and public relations will be leading topics for discussion at the seventh annual convention of the Agricultural Aircraft Assn. to be held at the Californian Hotel, Fresno, Jan. 31-Feb. 2.

Talks will be heard on such subjects as developing safety habits, what to expect in the way of new laws and legislation from state and federal governments, planning good public relations policies and insurance for the industry. A trade exhibit will be larger and more heavily attended than in previous years.

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how to prevent them
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Perry O. Onstot

Perry O. Onstot Moved to Davison's Baltimore Office

BALTIMORE, MD.—Perry O. Onstot has been appointed agronomist and sales promotion manager for the mixed fertilizer division of Davison Chemical Co., division of W. R. Grace & Co., and transferred from the branch office at Joplin, Mo. to the Baltimore headquarters.

A graduate of the Missouri University College of Agriculture, Mr. Onstot formerly for four years was instructor of vocational agriculture and supervisor of veterans on the farm training in Missouri.

Mr. Onstot has been active in various national and state groups. He has served on the agronomic advisory committee of the American Plant Food Council; as vice president of the Missouri Soil Fertility and Plant Nutrition Council; on the board of directors of the Oklahoma Plant Food Educational Society and as chairman of the Agricultural Council of the Missouri State Chamber of Commerce. He is a member of the Arkansas Plant Food Educational Society, American Society of Agronomy and Soil Science Society of America.

Louisiana Aerial Applicators to Meet

BATON ROUGE—The second annual Aerial Insecticide Applicators Conference will be held Jan. 25-26 at Louisiana State University, according to Kirby L. Cockerham, entomologist, LSU Agricultural Extension Service.

Subjects to be discussed at the meeting include "Airplane Application of Insecticides" by Joseph C. Brusse of the Texas Engineering Experiment Station, and "The Hazards of Handling Insecticides" by Dr. Charles S. Petty of the LSU Medical School, Warren H. Reinhard, Occupational Health and Safety Section, Louisiana State Department of Health, and E. A. Epps, state chemist.

There are about 75 airplanes operating in the rice area and a similar number operating in other producing areas of the state. The principal object of holding meetings of this type is to improve the methods of insecticide applications, the relation between pilots and farmers, and better results from the materials used, says Mr. Cockerham.

The meeting is being co-sponsored by the Louisiana Agricultural Extension Service and the Louisiana Aerial Applicators Assn. Walter H. Broussard, manager of the Zigler Flying Service of Jennings, La., is president of the association.

VEGETABLE DAY

AMHERST, MASS.—About 100 commercial growers are expected to attend the 10th Annual Vegetable Day in Gunness Laboratory on the University of Massachusetts campus Jan. 23.

Illinois Custom Spray Operators School Set for Jan. 23-25

URBANA, ILL.—The ninth Custom Spray Operators' School will be held at the University of Illinois Jan. 23-25. H. B. Petty, extension entomologist, is in charge of the school.

Beginning the afternoon of Jan. 23, the Illinois Aerial Applicators Assn. and the Agricultural Spraying Assn. will hold their annual business meetings. Operational problems facing spray operators will be discussed.

The school will open officially at 10 a.m. Jan. 24. The European corn borer situation in Illinois will be discussed by J. D. Briggs, W. H. Luckmann and H. B. Petty of the Illinois Natural History Survey and the College of Agriculture. G. C. Decker, head of economic entomology for the survey, will discuss chemical residues on crops. Earl Spurrier, extension agronomist, will discuss weed control in corn.

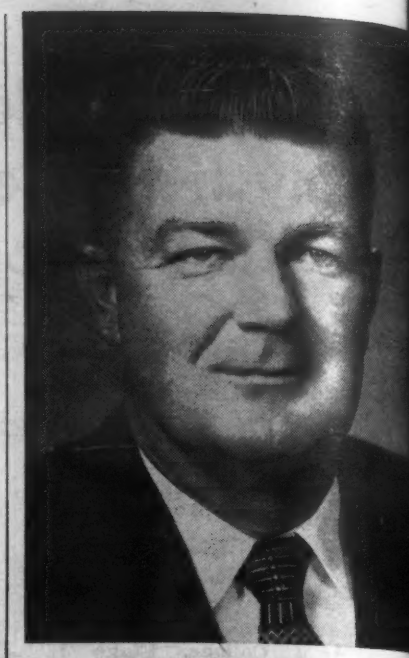
Afternoon subjects include uses of soil sterilants, spotted alfalfa aphid, control of Canada thistle with amino triazole, the insect situation in Illinois, 10 years of commercial brush control, use of pre-emergence weed chemicals, Johnson grass and wild garlic control.

Jan. 25 morning topics will include problems of Dutch elm disease control, new herbicides, use of liquid and dry fertilizers, equipment for mixing and applying liquid fertilizers, care and adjustment of sprayers, insect pests of lawns and ornamentals, soil insecticides, results with Randox for giant foxtail control and weed control in soybeans.

The Custom Spray Operators' School is sponsored by the University of Illinois College of Agriculture and the Illinois Natural History Survey. All sessions will be held in the Illini Union Bldg.

DOW APPOINTMENT

MIDLAND, MICH.—Dr. David H. Morgan, former president of Texas A&M College, has been appointed director of college relations for the Dow Chemical Co., Leland I. Doan, Dow president, has announced. An important function of the post will involve liaison with institutions of higher learning to encourage industry-education cooperation for the advancement of science and engineering and to stimulate student interest in the various scientific fields.



Dr. Irvin M. Wofford

Southern Nitrogen Co. Appoints Agronomist

SAVANNAH, GA.—Southern Nitrogen Co. has announced the appointment of Dr. Irvin M. Wofford as director of agronomy for the company. He will work closely with the agricultural research and extension leaders of the Southeast, according to the company.

Dr. Wofford is a native of Georgia and studied business administration at Oglethorpe University and Piedmont College before joining the Farmer's Home Administration in 1937, where he remained until he entered the military service in 1943. He later re-entered the University of Georgia and graduated from the School of Agriculture in Agronomy in 1948.

In 1949, he received his master's degree in agronomy from the University of Florida and immediately joined the teaching staff at the University. He entered graduate school at Michigan State in 1951 and received his Doctor of Philosophy degree in 1953.

He then joined the research staff of the department of agronomy of the Florida Agricultural Experiment Station.

Dr. and Mrs. Wofford will make their home in Savannah, Georgia.

BANKERS STUDY FERTILIZER ECONOMICS—Two officials of the Missouri Bankers Assn. and W. R. Allstetter (center), vice president of the National Plant Food Institute, Washington, D.C. look over the new booklet "Soil Treatments in Balanced Farming," published for the Missouri Bankers Assn. by the Institute. The booklet is being distributed to Missouri farmers through the banks. Flanking Mr. Allstetter in the photo are Robert E. Lee Hill (right), executive manager of the Missouri Bankers Assn. and Ben Glassen, vice president, Mechanics Bank & Trust Co., Moberly, Mo., chairman of the MBA agricultural committee. The occasion was the fifth annual National Agricultural Credit Conference of the American Bankers Assn. held in St. Louis, Mo. recently. The group stands in front of the National Plant Food Institute exhibit.

WORLD REPORT

By GEORGE E. SWARBRECK
Croplife Canadian and Overseas Editor

hough the Middle East is rated as of the world's major trouble s, commercial activity is going on bated. This is particularly true of fertilizer business for the Israeli allations are booming.

ow comes a report from Jordan cerning the proposed construction a pilot plant for the refining of sh extracted from Dead Sea min-ls. Responsible for the develop-t is the Jordan Potash Co., Ltd., overnment-sponsored organization ch has been set up to exploit min-ls.

American bids have been invited the engineering, design, prepa-tion of detailed drawings, spe-ications and supervision of con-uction operations for the plant outlined in a report prepared by Chemical Construction Corp. of w York in 1954. The bids must ovide for the operation of the ot plant under a management ntract.

copy of the Chemical Construc-Corp. report, called "Potassium oride and by-products from the d Sea," is available for review on from the trade development divi-of the U.S. Department of Com-rce in Washington. Interested ns are invited to describe their vious operations and experience to chief of the economic planning ision in the Ministry of Economy, man, Jordan.

rtilizer for Sudan

The Sudanese government is inter-ed in buying quantities of fertilizer m U.S. manufacturers.

The present annual requirement is de up of 18,000 tons of urea (46% rogen) packed in 50-kilo bags; or 00 tons of ammonium sulfate % nitrogen) packed in 2-cwt. ms; or 25,000 tons of ammonium rate (34.5% nitrogen) in 4-cwt. ms, or 26,000 tons of ammonium rate limestone mixture (20.5% ni-gen) packed in 75-kilo bags.

The Sudanese authorities say that se amounts might be doubled in next few years.

Interested suppliers are asked to d their quotations on an f.o.b. is at port of origin and c.i.f. Port lan to the Embassy of the Sudan, 0 Massachusetts Avenue N.W., shington D.C.

Most suitable delivery dates, it is orted, are between Oct. 15 and y 20.

pple and Pear Scab

Compounds of the chlorogenic acid e appear to play an important part building up resistance to fungi ich cause apple and pear scab, ac-ding to a British research man, Dr. S. Kirkham.

Dr. Kirkham is on the staff of the earch station at East Malling, nt, England. He reports that ex-iments are now being made to find compound which will be more sonous than chlorogenic acid, but damaging to the tree. Cinnamic d is now giving the best results. ots raised under artificial light in eated greenhouse were inoculated h scab; 24 hours later all but the ntrol shoots were inoculated with % solution of sodium cinnamate. Kirkham says that 13 days after second inoculation "a high degree inhibition was observed in the ated plants."

In another research project, a Brit-investigator has found that by aying laden apple trees with a xture of 10 parts to a million of ha naphthalene acid, the fruit will stay on the tree even in the heaviest gales. The fruit can also be left on the tree past normal harvesting time with complete safety.

Hopper Infestation

Canadian entomologists say that the outbreak of grasshopper infestation on the prairies in 1957 may be seven times as bad as last year. In 1956 the infestation was fairly light, but an attack of the forecasted size could be a serious threat to crops.

The main trouble spot is likely to be in southern Manitoba covering an area of about four million acres. Farmers are being warned to take precautions.

Since the early 1900's the prairie provinces have had recurrent cycles of grasshopper infestation. The cycles come about every 11 years. With the development of insecticides, control measures are much more effective than they were two decades ago.

The seriousness of the 1957 threat will depend upon weather conditions, the entomologists say.

Farmers may obtain insecticides from their dealers and then apply to the local authority for a refund amounting to 40% of the cost. The provincial government, in turn, makes a refund to the local authority.

Nitrogen in U.K.

The increasing use of nitrogenous fertilizers has brought cereal yields in the eastern counties of England to an all time high, according to Ministry of Agriculture officials. Their report says that 90% of all wheat crops are receiving nitrogen, the average dressing for both winter and spring wheat being just over 50 lb. to the acre.

With winter wheat it has been found, as a result of 100 trials, that 50 lb. of nitrogen gives an average of 11 bu. more grain. Considerably higher yields have been obtained by splitting the top dressing into two applications rather than by giving the whole amount in one treatment.

The agricultural officials suggest that there may be a substantial market for a slower acting form of nitrogen than the presently available inorganic fertilizers. The answer, they think, may lie in the use of some form of urea-formaldehyde condensation product.

OPENS STORE

GRAND JUNCTION, IOWA—H. A. Huegerich has opened a feed and seed store here.

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YOU cut costs with combined carloads from one *basic* source.

YOU can save money, time, plant space and effort through the use of our custom formula mineral mixture service.

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MID-SOUTH OFFICERS—Officers of Mid-South Chemical Corp., Memphis, are shown above as they gathered to honor Maj. Gen. Ralph H. Wooten upon his retirement from the firm. From left to right are J. D. Wooten, vice president; Gen. Wooten; Ellis T. Woolfolk, president; John C. Hogan, secretary-treasurer; Charles E. Woolfolk, advertising manager, and D. H. Bradford, sales manager.

Gen. Ralph H. Wooten Retires from Mid-South Chemical Corp.

MEMPHIS — Maj. Gen. Ralph H. Wooten, president of the Agricultural Ammonia Institute during 1956, has retired from Mid-South Chemical Corp. and will continue as a consultant to the agricultural chemical concern, according to an announcement by Ellis T. Woolfolk, president.

Gen. Wooten, whose military career spanned two world wars, retired from the Air Force in 1948 and entered the agricultural chemical business.

As one of the founders and first executive vice president of Mid-South Chemical Co., Inc., predecessor of Mid-South Chemical Corp., General Wooten helped develop an anhydrous ammonia marketing organization that has grown to include operations throughout the central United States and in Texas.

Gen. Wooten was one of the founding members, first treasurer and later president of the Agricultural Ammonia Institute, national trade association of the industry, which now has members in more than 40 states and several foreign countries. As publications chairman of this organization, he launched its publication, the Agricultural Ammonia News. As retiring president of the AAI, Gen. Wooten will continue as a member of its executive committee.

Born at Independence, Miss., Aug. 30, 1893, Gen. Wooten was graduated from Texas A&M in 1916, and entered the Army as a second lieutenant in 1917. He transferred to the Aviation Section, Signal Corps, in 1918 and after flight training, became an instructor.

His many assignments between World War I and II included two tours of duty as military and air attache, American Embassy, Santiago, Chile. During the war, he commanded Air Force training at Miami Beach, where over 500,000 officers and enlisted men were trained; commanded the 6th Air Force Service Command and 6th Air Force headquarters at Albrook Field, Panama; commanded U.S. Air Forces, South Atlantic with headquarters at Recife, Brazil.

Following the war, he was on special assignment with the State Department, and concluded his military career as commanding officer of the Pacific Air Command. He holds many military awards. General and Mrs. Wooten are on a trip to Florida and will continue to live in Memphis.

National Potash Opens Southern Sales Office

MONTGOMERY, ALA. — National Potash Co. has announced the opening of its southern sales office at 212 Bell Bldg., Montgomery, Ala. According to W. B. Porterfield, vice president and sales manager of National, Fred C. Broadway has been appointed manager of the new Montgomery office. Telephone number of the office is AMherst 5-8234.

INSECT OUTLOOK

(Continued from page 1)

Rangeland areas where grasshopper populations are likely to be h'ghest are in the tri-state region of the Texas Panhandle, northern Oklahoma and Kansas; in Montana; in a pocket along the Arizona-Mexico border; and in California.

Smaller potential trouble spots occur in New Mexico, Nebraska, Colorado, Wyoming, the Dakotas, Oregon, Idaho, Arkansas, Utah, Nevada, Washington and Missouri.

Greatest grasshopper increases on cropland appear to be in Minnesota and North Dakota, but farmers in many midwestern and western states may find it necessary to apply control measures against the pests to avoid damage to cultivated crops. Grasshopper egg pods were found last fall in threatening concentrations on cropland in Montana, Idaho, Utah and New Mexico, and eastward through Arkansas, Missouri, Illinois, Indiana and Michigan.

Mormon crickets were building up their numbers in parts of Montana, Nevada and Wyoming with limited infestations also on rangeland in Idaho, Utah and Colorado. Areas that may require treatment for cricket control in these six states in 1957 total almost 474,000 acres.

In 1956, the Mormon cricket threatened rangeland vegetation on some 180,000 acres in six western states. Cooperative control measures were taken on almost 56,000 acres in five of these states.

Far more infested rangeland acreage warranted control to suppress grasshoppers and Mormon crickets in 1956 than was actually treated under cooperative programs, USDA officials stated. More than 2 million acres of grasshopper-infested rangeland were treated to prevent depredation. An estimated $37 million in cash value of crops in 22 reporting states was lost in 1956 to grasshoppers and Mormon crickets, and almost $38½ million was saved through voluntary and cooperative control activity.

Farmers kept grasshopper damage to crops at a minimum by applying sprays, dusts or baits to more than 4½ million acres.

Frank Seeland

Frank Seeland New Vice President Of S. B. Penick & Co.

NEW YORK — The election of Frank Seeland as vice president of S. B. Penick & Co., manufacturers of chemicals and drugs, has been announced by S. B. Penick, Jr., president.

A member of the Penick organization since 1952, Mr. Seeland was appointed manager of the agricultural chemical and insecticide division in 1955, succeeding Harold Noble, who retired then. Mr. Seeland has been active in the field for over ten years and under his leadership this division has expanded the scope of its operations and introduced such items as Sulfoxide, Ryania, Pro-Noxfish (R) and Warfarin. Mr. Seeland is married and has three sons.

New Canal Sealing Technique Shows Promise

SALT LAKE CITY—Utah farmers have new hope of ending canal water loss, thanks to a new mass production technique of canal sealing with water-borne clay sediments.

The new idea is getting careful scrutiny in the mountain region, a survey shows, with the use of Bentonite, a clay mined in the area of Tropic and other Utah locations. Bentonite is the basis of research conducted by Colorado A&M Research Foundation with other co-operators.

Theory behind the research is concerned with the floating of Bentonite in the canal's own stream.

The clay has qualities which permit it to seep into the cracks in the stream bed through which irrigation water is lost. The Bentonite clay seals the cracks, thus performing a canal-lining function at low cost.

Even under initial experimental condition, the costs of sendimenting have been low—ranging from about 1 to 20¢ per square yard of wetted area in the reaches of canal being sealed. Experimental linings have apparently successfully weathered two irrigation seasons and one winter!

With most irrigation canals unlined, it is pointed out by the researchers, canal delivery of water averages water losses of up to one-half.

IRRIGATION EXPOSITION

STATE COLLEGE, N.M.—The Southwestern Irrigation Exposition at the Otero County Fair Grounds, Alamogordo, N.M. will be held Feb. 15-16. The exposition will feature educational and commercial exhibits and demonstrations and lectures on about every phase of irrigation agriculture, from the source of water to the marketing of irrigation crops.

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irm Without Retail Store inds Personal Visits With ustomers Is Best Sales Tool

By PHIL LANCE
Croplife Special Writer

Direct contact with customers and spects keeps and makes more fer- zer customers for John K. Curry & ns, Palmyra, Pa. Such contacts help acquaint customers with this deal- s line of fertilizer long before they ed it.

"When you don't have a store to rchandise from, the next best step personal contact," explains John K. rry, partner. "Fertilizer is pur- ased by the farmer as he needs it d when he makes visits to a store, remembers it as a place to buy his uirements. But when we never see customer from one season to the xt, a personal visit is the best sales tivity."

John K. Curry & Sons has stand- orders for the delivery of feeds to customers, and it's only on oc- ions that a farmer will visit the ll. And because of the infrequency these visits this dealer feels that showroom or store is not a sales cessity. Therefore, to make his cus- ners conscious of him as an outlet their fertilizer needs, he makes it oint to go to his customers.

Selling is more or less in the nds of Herb S. Curry, one of the der Curry's sons who are in busi- ess with him. Louis C. Curry han- es the mill operations. Herb Curry as taken courses in agriculture nd soil conservation and has work- l closely with representatives of rtilizer manufacturers.

"Oats, wheat, barley and corn pre- minate here," says Herb Curry, nd we feature 3-12-6 for barley and 0-10 for all the others. In fact, we ve discussed the various fertilizers at farmers are using on their fields the area and found that those using e suggested ones are growing great- crops. This is brought to the atten- n of non-customers who are not ing these formulas as a wedge to roduce them to our line of ferti- ers."

In selling fertilizer, Herb Curry ds that the best sales pitch is a all batch of the different fertilizers at can be shown the customer. Bags containing these fertilizers are opened when meeting with a customer and contents thoroughly discussed. There seems to be something "live" about handling fertilizer when discussing it with a customer.

Usually, price is the main subject that customers bring up. But not so when Herb Curry broaches the subject. He sticks to technical points, such as the formula, the proper application of fertilizer and its assistance to the crop yield. Price is the last thing discussed. Herb Curry feels that farmers will not give their business to someone else just because of a few dollars. They have confidence in the dealer who takes the time to discuss their requirements with them.

In many cases farmers request a spreading service and the firm provides for it through the manufacturer. Curry is billed by him and the customer is billed by Curry so that the firm enjoys a profit from both material and service without even as much as handling any part of it.

As most of the firm's customers are on credit, fertilizer is sold the same way. It's just added to the customer's bill. As an inducement to get prompt payment, a 2% discount is offered on C.O.D. or payment within 10 days.

Several mailings on fertilizer are made to all customers and prospects of Curry before the actual season starts. This is backed up by personal visits and on many occasions, by leaving a small quantity of fertilizer with the customer. Radio spots are used on programs sponsored by this dealer right before spreading season and newspaper advertising is used in several weeklies that cover the counties served by the firm.

"But by-and-large, a personal visit is our most important sales feature," relates Herb Curry. "When we can discuss fertilizer with the farmer who is seated on a tractor or talk it over while seated on the porch or in the living room, we not only play up the need for fertilizer, but the reliability of buying from a nearby dealer. As a result, we feel that we are getting as much business from our area as we feel a live and energetic dealer can get."

OWING THE PRODUCT—Herb S. rry of John K. Curry & Sons, lmyra, Pa., believes in showing the stomer what's in the fertilizer bag. hen discussing fertilizer with a ospect he likes to open a sack and the customer see the product.

Future Holds Rewards For Well-Managed Farms

NEW BRUNSWICK, N.J. — New Jersey's population has increased by half a million persons since 1950, Phillip Alampi, state secretary of agriculture, pointed out at a recent meeting of the E. B. Vorhees Agricultural Society at Rutgers University.

"Each year, at our present rate, we gain the equivalent of three new cities the size of New Brunswick," he said. "During December we shall record a new gain of 10,000 people. That's the equivalent during December alone of another three entirely new Flemingtons or two entirely new Newtons."

Mr. Alampi said this growth will bring advantages and disadvantages to the state's agriculture. He expressed the belief that the future holds many opportunities for agriculture—greater rewards for well managed farms, new equipment, better fertilizers and plants of new breeding.

SHOP TALK

OVER THE COUNTER

FOR THE DEALER

By EMMET J. HOFFMAN
Croplife Merchandising Editor

The practice of booking fertilizer material and application orders ahead has many obvious advantages for the dealer.

It takes just about as much time, effort and brainwork to sell a customer a ton of fertilizer as it does to sell him a contract for providing five or 10 tons for future delivery and application. So it is logical to go after the big orders early. The practice produces more volume and saves on selling expense.

If the fertilizer dealer makes no attempt to book fertilizer orders ahead and is content to sell merely the bags or tonnage the farmer needs for the moment, the farmer himself certainly is not going to volunteer to book his orders ahead on a contract basis.

Therefore the initiative rests in this matter with the dealer. No farmer is going to get angry if you suggest that he buy his fertilizer early. In fact, many farmers will consider the advantages of buying on this basis, advantages which you can explain to him in the selling process.

Getting a farmer to buy this fertilizer ahead will form the habit of buying other items from your store. He will look upon you as his main source of supply of fertilizer and other farm chemicals and products.

"There are several reasons why I am paying more attention to soliciting business for future delivery," declares one merchant. "In the first place, every dealer has some spare or idle time. When I have time like that I go out and contact farmers on this advance booking. Maybe they don't want to buy anything right then, and if you approached them on that basis you'd be turned down. But most farmers know they must buy one, two, three months from now, and they're ready to consider good buying arrangements for that future period."

Thus, this dealer says, there is no such thing as a saturated market at any time, for the dealer is doing future selling. Secondly, he states, you get the jump in selling the farmer.

One dealer says, "If you have the customer on a contract basis, you are assured of having that account for a certain period, and you work harder to please those accounts and keep them."

Farm supply dealers who sell sprayers for farm use have found that a good time to get extra sales is in winter, when farmers have time to inspect and discuss the features of sprayers. In other words selling sprayers ahead of the actual season when they are needed gives the dealer extra sales long before they might normally be expected. A certain number of farmers will always be receptive toward preseason selling if they are apporached properly.

Sales Volume Is Increased

Pre-season selling means a great deal to sales volume. Just as the federal government puts more money into the federal treasury by pay-as-you-go income tax, so the alert dealer can put extra dollars into his cash register earlier through pre-season selling and through contract buying assure himself of future volume. This

(Continued on page 19)

By RAYMOND ROSSON
County Agent, Washington County, Tenn.

While nature is at rest, 'tis a good time to think a bit . . . and maybe it wouldn't hurt to ask a few questions . . . questions are good for us.

What would we do with the surpluses if all farmers were as efficient as the best ones?

Could we drink all the milk if every milk cow produced 10,000 lb. of milk annually?

What would we do with corn if we'd reduce the acreage 10% then apply 60 lb. N, 75 lb. P_2O_5 and 120 lb. K per acre on the other 90% of the acres.

What would happen to all small grains, soybeans, cotton, etc., if fertilized as well in proportion? . . . Would there be more surpluses?

What would happen to the many small towns and country county seats if all agricultural areas combined every three farms into two farms, and the other farm family move away to some large city, thus reducing the country population by one third? Would this not reduce the buying power?

And how would this affect the business man in the small country towns, and the small cities?

What would happen to the schools and the churches?

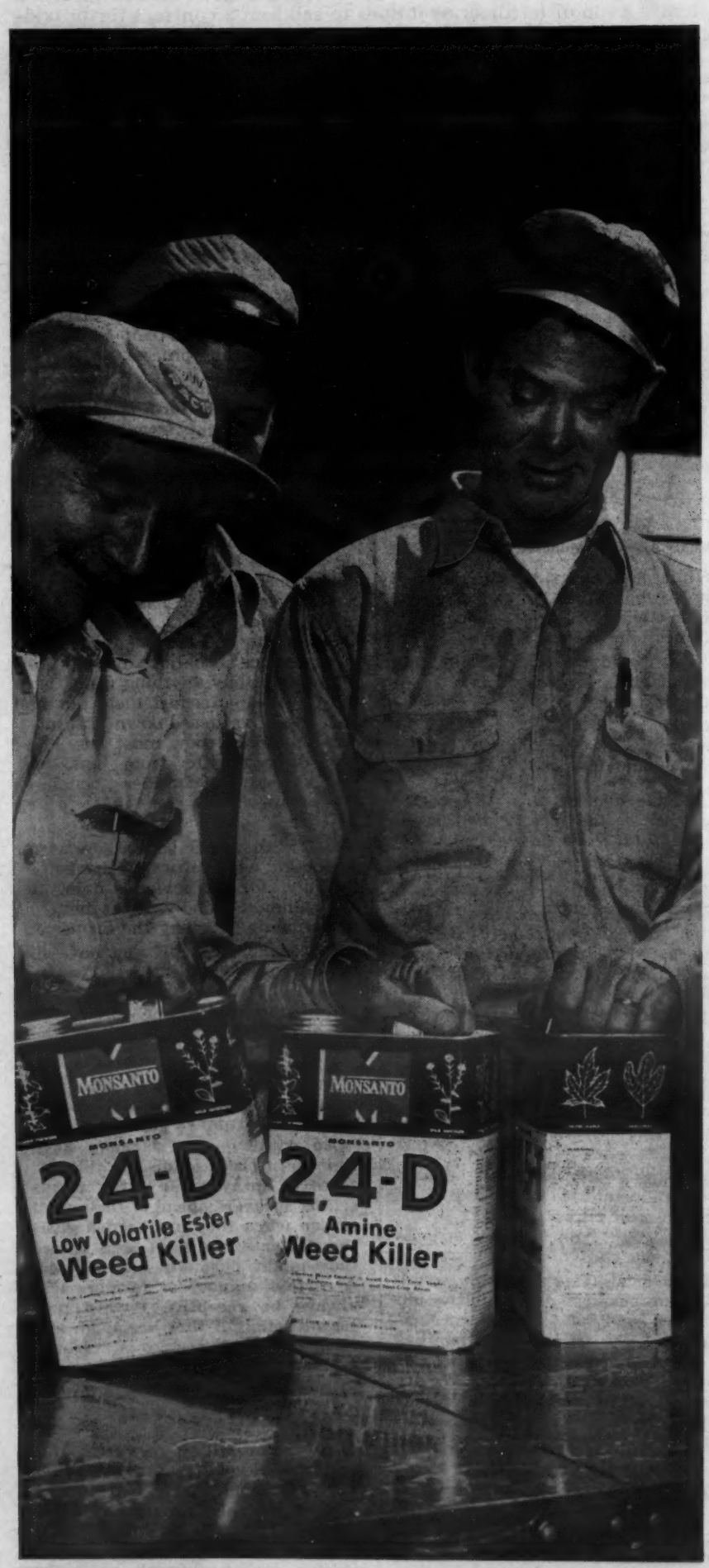
Economically speaking . . . especially for business . . . which would be better . . . 2,000 75-acre farm families . . . 1,500 100-acre farm families . . . 500 300-acre farm families, or 150 1,000-acre farm families? We are thinking of a county with 150,000 crop acres.

STEM RUST LEAFLET

MORGANTOWN, W.VA. — "Stem Rust Destroys Our Grain," Misc. Pub. No. 54, has just been issued by the Agricultural Extension Service of West Virginia University, it was announced here by David Quinn, extension plant pathologist and entomologist at the university.

GIGANTIC WEED KILLER P
TO YOUR STORE FIRST —

Monsanto's Spray-Rater premium, 2 new- ty



Monsanto's special promotion brings customers to your store just before heaviest buying season. You get *first crack* not only at weed killer sales—but also at related items like seed, fertilizer, etc.

1. New, Exclusive Spray-Rater Premium—a $2.50 value, but your customers pay only 25¢ with 5-gallon purchase of Monsanto weed and brush killers. Here's an item your competitors can't give the farmer: a sturdy plastic measuring device to make sure his spray rig is spraying the correct amounts. Buyer collects special tags on cans, sends 'em to Monsanto with 25¢—no work for you. For more facts, write *today!*

4. Big "Silent Salesman" Display, life-size farmer display in full color holds an actual Spray-Rater for customers to inspect, shows a can of Monsanto herbicide. Built-in literature rack keeps your counters free from clutter. This display is an "extra" salesman who works for you free, helps you make more sales. To get him working for you in time, write *today!*

PROMOTION PULLS FARMERS —IF YOU ACT NOW!

type weed killers give you head start

2. TWO Brand-New Grassy-Weed Killers—Monsanto Randox* and Vegadex.* These two new selective pre-emergence weed killers will help your customers harvest greater yields! *Randox* kills annual grassy weeds without damage to corn, soybeans and many vegetable crops; *Vegadex* practically eliminates hand weeding in most vegetable crops. Stock, sell and profit from these new additions to the big Monsanto line. Write *today!*

3. 41 Full-Page Ads, 34 Half-Page Ads in farm magazines and papers, including publications in *your* home territory, announce the exclusive Spray-Rater offer TWO WEEKS BEFORE the usual time farmers in *your* area buy weed killer! You get a two-week head start over your usual competition! Be sure you profit from this advertising. Write *today!*

5. Literature, Movie, Catalogs back you up all the way. We give you Spray-Rater literature and other sales folders for your salesmen, display dispenser, and mailings; 16-mm. full-color, 18-min. movie for group showings; store banners; catalogs; last-minute material on new forthcoming herbicides, new Monsanto 2,4-D and 2,4,5-T formulations—and other sales aids. Just write *today!*

MONSANTO WEED AND BRUSH KILLERS
2,4-D amine and esters, MCP amine for weeds; 2,4-D/2,4,5-T and 2,4,5-T esters for brush.

OTHER MONSANTO PRODUCTS FOR THE FARM
Meta-Green ® Silage Preservative, *Parathion* insecticides, phosphates (liquid and solid), *Lion Brand* ammonium nitrate, sulphate of ammonia, anhydrous ammonia.

Send Your Name and Address Today to . . .

Farm Chemicals, Organic Chemicals Division
MONSANTO CHEMICAL COMPANY
Dept. AC-1, St. Louis 1, Missouri

**Trade-mark of Monsanto Chemical Company*

MONSANTO ®
WHERE CREATIVE CHEMISTRY WORKS WONDERS FOR YOU

Doing Business With

Oscar & Pat

By AL P. NELSON
Croplife Special Writer

When Pat McGillicuddy came to work that brisk, cold January morning, he was whistling Killarney and feeling quite happy, because he had gotten a spring promotion idea in his sleep and was ready to work on it at once. As he stepped into the warm office, Tillie, the plumpish bookkeeper, was already at work, and so was pudgy, balding Oscar. They always preceded Pat at work, for he habitually arrived late.

At first it used to bother Pat—the look of ill concealed contempt on Oscar's face, as he would look at him and then at the old fashioned wall clock which ticked loudly—but now it didn't bother him very much. People were people, and he and Oscar certainly were not alike.

After Pat took off his grey fur cap and grey stormcoat and faced his desk, he seemed slightly puzzled. There was something different about the surroundings. Then his eyes spotted a large, bright red oil can on the farther end of his desk. It was the five gallon variety and it stood out like nobody's business.

Puzzled Pat sat down, looked over at schoolteacherish Oscar, pencil poised over some bills, and asked, "Oscar, what's the idea of the red oil can?"

"It belongs right there," Oscar said sharply, his eyes never leaving his bills.

"Here? Why?"

Oscar put down his pencil, turned slowly and looked at Pat with cold eyes. "That red oil can is a reminder, ach, of how our business is right now—in the red."

"In the red!" Pat ejaculated. "Holy County of Cork. I thought we had a very profitable year in 1956. How can we go into the red in 1957 with only part of a month gone by?"

"McGillicuddy," Oscar said with tight lips, "can you lend this business $7,895.63?"

Pat stared. "W—why no, I can't. That's a lot of money. I don't have that kind of green stuff lyin' around."

"Uh. huh!" Oscar said with condemnation in his tone. "Just as I thought. You never pay any attention to what money we have and what we need. All you think of is selling. Ach, you think if you sell, everything is just hunky dory. McGillicuddy, we are in trouble."

"Now, what is this?" Pat demanded. "What kind of trouble, and what's this seven thousand business all about?"

"It's seven thousand, eight hundred ninety five dollars and sixty three cents, McGillicuddy," Oscar said. "That's how much money farmers owe us right now—this morning."

Pat whistled. "Gosh, is it that much?"

Oscar snorted. "Yes, it is. I figured it twice. And why is it so high?"

Pat held up his hand. "I know. Don't tell me. Because I didn't collect enough in December."

Oscar smiled thinly. "Oh, so you know, do you? You didn't collect anything, Irisher. You spent the whole month helping rural schools arrange their Christmas program. You talked at farmers' Christmas parties, you cooked up those crazy free dinners at the hotel for farmers that bought lime in the last three weeks. You went on a Christmas tour of towns nearby with the Chamber of Commerce men. Ach, McGillicuddy, you did everything but collect. And now we ain't got any money, and we have to borrow from the bank."

"But—but those good will things couldn't be done at any other season except Christmas, Oscar. I was pretty busy. I intended to collect, but there just wasn't time. Besides farmers don't want to be bothered with collections at Christmas."

Oscar snorted. "Well, I like them to be bothered. Ach, what do I care if a farmer buys his wife one of them—them black nightgowns for Christmas just because he feels foolish. I don't care if he pays us first what he owes us. But when he skips payin' us and buys that stuff, then I get mad."

"Well," said Pat a little worriedly, "I think I will go right out this week and collect and see if I can bring some of this money in. You know, Oscar, if you wouldn't hound me so much about these bills, maybe I'd go out more often. Nobody likes to be nagged."

Oscar straightened. "If I didn't keep after you, we would never get any money in. You would let everybody buy what they want, ach, even if their credit was no good. You just wouldn't check. You let them take you in with promises, promises, promises. I want the cash. They don't pull that 'I can't pay right now' stuff with me. Cash or no goods, that's what I believe in."

Pat McGillicuddy looked at Oscar for a long time. Fire flashed between the men. Tillie, the plumpish bookkeeper, had long ago gone across the street for coffee. She refused to listen to any more quarrels between the two partners. And she had her application in for a better job with three employment bureaus.

"Oscar," Pat said slowly, his tones full of ice, "just how did we get into business together anyway?"

Frugal Oscar laughed. "You wanted to buy this business and you went to banker Otto Giesen for some money. Ach, and he told you where to get it and a partner, too. He knew what he was doing. He knew you needed someone to hold you down. You didn't make a mistake when you got me as a partner. I made the mistake when I got YOU!"

Pat McGillicuddy looked as if the gaiety of the morning had dissipated from his soul. "Even so," he said, "that is open to question. And you sure wasted money when you bought that new oil can. We've got an old one. This is pure waste."

Slowly Oscar shook his head. "Oh, no, I didn't. I borrowed this new can from the hardware store for one day. I will take it back tonight. It will not cost me one red cent, this little lesson."

Pat's face was white, and he got up and walked into the warehouse. How quickly, he thought, a bright, cheerful morning could turn into a dismal, gloomy affair. Especially when the wrong people came into the picture.

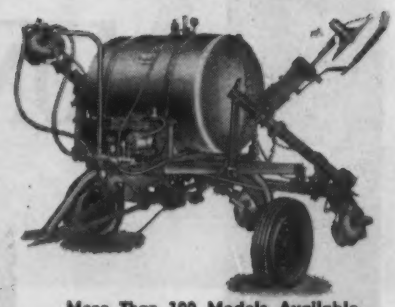
AQUA AMMONIA APPLICATORS

CHOOSE FROM THE Complete Broyhill ® LINE

the name that means **CUSTOM QUALITY**

Whether you're a commercial applicator, manufacturer, or individual user, there's a quality Broyhill tank and sprayer in a size, mount, and design to fill your needs. *Either knives or discs available.*

TRAILER, TRACTOR, TRUCK OR SADDLE MOUNTED



More Than 100 Models Available

FOR FREE CATALOG, WRITE

THE BROYHILL COMPANY, DAKOTA CITY, NEBRASKA

Maryland Crop Production Sets New Records in 1956

COLLEGE PARK, MD.—Maryland farmers set new production or yield records for soybeans, corn, wheat, barley and hay crops in 1956, according to crop estimates released recently by the Maryland-Delaware Crop Reporting Service.

Soybean production was up 43% from 1955. Both the 4,422,000 bu. 1956 Maryland crop of soybeans and the yield of 22 bu. per acre set records despite bad weather at harvest time. The previous high yield, 20 bu. per acre was set in 1955.

The 1956 Maryland corn yield of 60 bu. per acre was 12 bu. above the previous high, set in 1950. Corn production in 1956 also set a record—28,620,000 bu.

The 1956 Maryland wheat crop of 4,730,000 bu. was down from previous years, following a downward trend in acreage, but the yield of 27½ bu. per acre was 1 bu. higher than the record yield of 1955.

The barley crop of 3,520,000 bu. was up 8% from 1955. Yield per acre, 40 bu., was 2 bu. above the previous high in 1954. A record yield of 1.59 tons of hay per acre enabled Maryland farmers to produce 683,000 tons of hay—about the same as 1955—although acreage was smaller.

Preliminary estimates of the 1956 Maryland tobacco crop place production at 38,500,000 lb., with a yield of 875 lb. per acre. Commercial apple production of 1,160,000 bu. is down 7% from 1955 while the peach crop, 415,000 bu., is down 17%. Potato production in Maryland is placed at 51,100,000 lb., or 7% less than in 1955.

NORTH CAROLINA SHIPMENTS

RALEIGH, N.C.—North Carolina fertilizer shipments during November totaled 43,644 tons, compared with 35,352 tons in November, 1955. Shipments for the first five months of fiscal 1957 (July-November) totaled 172,909 tons, up slightly from 172,030 tons in a comparable period a year earlier.

Spreading Service Is Sales Booster For Many Dealers

By AL P. NELSON
Croplife Special Writer

Many fertilizer dealers have found that a spreading service is a big aid in boosting sales.

"When we started to offer a spreading service, we found that the average farmer bought more tonnage than when he applied his own," one dealer told me recently. "The ease with which the entire spreading job could be done has impressed many farmers, and they like the low per acre price."

A custom spreader who has a fleet of eight spreaders and a large transport told me that he did not get enough spreading jobs on fertilizer until he did two things, as follows, to convince farmers of low costs and efficient service:

1. He staged several spreading demonstrations on various farms and advertised the event in newspapers, inviting farmers to come to see how efficiently and rapidly he could spread at only 50¢ per acre.

He drew large crowds at three meetings and then he began to get more orders for this service.

2. The custom spreader also spent $450 for a television program which showed scenes of every step in the fertilizer spreading process, detailing the uses of the machinery and pointing out how cheaply the work could be done.

As a result of these two steps the custom operator says he got more work from farmers than he could handle with his equipment. He had to buy a couple of additional units to handle the orders.

Some dealers find it profitable to have one or two custom spray outfits which they can rent to farmers or do custom spraying themselves. They say that having such machines in operation helps to make an additional profit and that the practice also helps to sell more sprayers.

The dealer who has one or two custom sprayers of this type could also take movies of spraying operations in orchards, fields, etc. and then show such a movie many times during the year at meetings held at the fertilizer store or elsewhere. Here again the dealer can explain the operations of each scene as the film is shown.

It has been proved on many occasions that this type of selling is very effective, especially of new machines and new products. And sprayers are new to many farmers.

And since cost means so much to farmers never fail to mention time and again in your advertising, in your verbal comments that for every dollar invested in fertilizer, the farmer gets back up to $6. Fertilizer is not a cost—but an investment. Stress this angle along with the low spreading cost and you may sell from 5 to 20 tons more fertilizer to some farmers in your area this year.

Delaware to Expand Activity at Substation

NEWARK, DEL.—The University of Delaware Board of Trustees has established a substation division in the School of Agriculture, to be administratively responsible to the dean of the school, Dr. G. M. Worrilow, and to function at the present agricultural substation near Georgetown.

The new division will coordinate and develop research, extension and short course programs in agricultural production, marketing and other fields. Research to be conducted will include field crop, vegetable and fruit production, as well as poultry nutrition, poultry disease control and other problems. J. Frank Gordy, county agent leader and extension poultry specialist in the School of Agriculture, was appointed director of the substation division.

LOW-COST KEY TO SOIL PRODUCTIVITY

The American Potash & Chemical Corporation, Duval Sulphur & Potash Company, Potash Company of America, Southwest Potash Corporation, and United States Potash Company Division of United States Borax & Chemical Corporation, comprise the membership of the American Potash Institute, Inc. Through their Institute, these firms conduct a continuing program of research and education, directed toward the more efficient use of fertilizers.

As a contribution to that program, the regionalized advertising message on the following two pages will appear as a part of the Institute's 1957 informational campaign in Farm Journal, Successful Farming, Farm and Ranch, Progressive Farmer and Capper's Farmer. Enlargements, for wall hanging, will also go to each vocational agriculture department, each county agent, and each university soils and agronomy office in the United States. Other educational messages will appear in some 50 farm magazines early in the fall of 1957.

Wall-poster-size enlargements of these messages, regionalized for the South, the Midwest, the West, and the Northeast, are available for tacking up. For how to obtain them, and how to use these and other American Potash Institute materials, see page four, of this insert.

white spots
early
fired edges
later
fired edges
late maturity
poor quality
uneven growth
weak straw
chaffy kernels
poor roots
LOW POTASH
fired edges
chaffy ears
uneven growth
poor roots
WITH POTASH

WHY-WHEN-HOW you should use

POTASH

Low-cost key to productivity in Eastern soils

WHY use potash? Very simple: *it pays.*

Potash is the low-cost key which opens the door to highest soil productivity. Potash makes for higher production of *better quality* products; puts more money in your pocket by helping you produce crops, meat, and milk more efficiently.

With *severely limited* supplies of potash, plants will live, but will develop many of the starvation symptoms shown in the left-hand sides of the illustrations on the opposite page. With *moderately limited* amounts of potash in your soil, you won't see these warning hunger signs, will never know the size of the crops you *could have* raised.

In short, potash—the *lowest cost* of the major fertilizer elements—contributes to *highest profits.* Not only through greater yields, but also through products of *higher quality,* better market appeal.

If you are following a typical Eastern cropping and fertilizing program, *you are running lower and lower on potash.* Without delay, collect soil samples, have them tested. Potash is low in cost; it will pay to use *every pound* the tests show you need.

A committee of soil experts recently declared potash use in Eastern United States would *double* if farmers used recommended amounts.

WHEN is the best time to use potash? There are many good times. As starter; plow-down; topdressing. But remember this: Eastern crops—legumes and grasses, corn, small grains, canning crops, truck crops and orchards—all need large amounts of potash. Whenever you market a crop, you have sold potash off your farm and need to replace it, just as surely as you need to fill the gas tank after a day of heavy plowing.

The single most important point to remember about *when* to apply potash is to apply it *before* a single hunger sign can be seen. When hunger signs show, all you can *hope* to do is *reduce your losses.* Apply potash early and amply, and you *build your profits.*

HOW to apply potash? Proper application is a *must* if you are to get the greatest return from your fertilizer.

For row crops, the potash in a mixed fertilizer should be placed in bands approximately 2 inches below and 2 inches to the side of the seed. With heavily-fertilized crops, it may be desirable to split the application, and broadcast some of the fertilizer before planting. Furthermore, side-dress applications of potash may be needed on light, sandy soils.

Potash needs of small grain can be met through the use of mixed fertilizers, applied with the drill, at planting. Adequate potash at this time benefits both the small grain *and* the legume seeding.

Liberal applications of potash should be made to forage crops, in the form of mixed fertilizer broadcast before seeding. This should be followed by topdress applications one or more times during the season.

These application principles apply regardless of whether the potash is added in a mixture, or as a separate material.

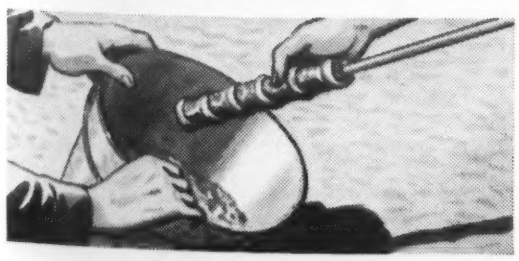
WRITE FOR FREE BOOKLET:
"Potash In Agriculture"

K_2O AMERICAN POTASH INSTITUTE, INC.

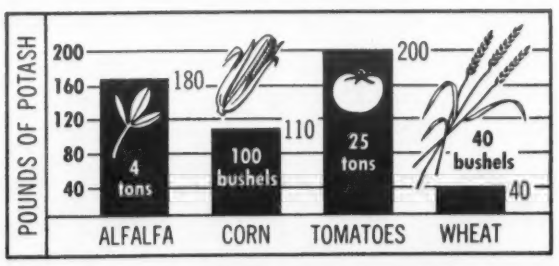
Dept. 151, 1102 Sixteenth Street, N.W., Washington 6, D.C.

MEMBER COMPANIES: American Potash & Chemical Corporation • Duval Sulphur & Potash Company • Potash Company of America • Southwest Potash Corporation • United States Potash Company Division of United States Borax & Chemical Corporation

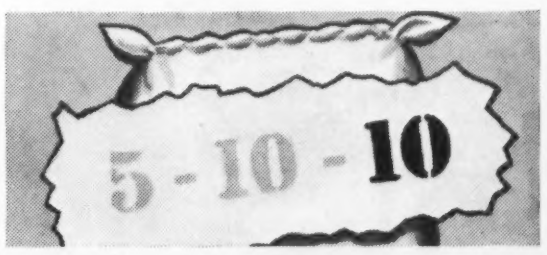
2-Minute Short-Course On How to *Buy* Potash . . .



Don't wait for hunger signs. Test soil, apply needed potash. Consult your official agricultural advisor.



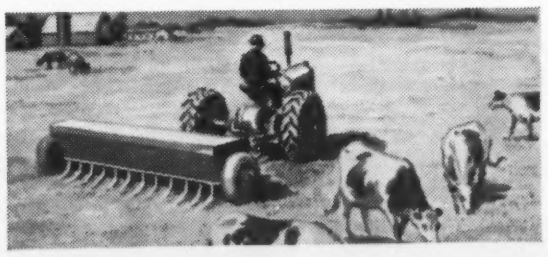
Eastern crops use lots of potash. And the better your yield, the more potash next year's crop needs.



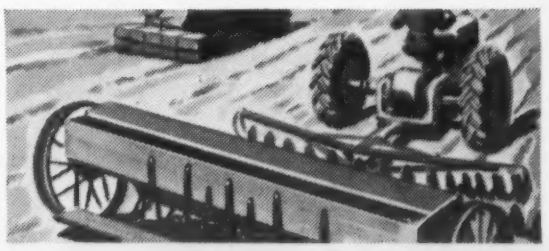
Potash is the "anchor man" in a fertilizer analysis—just as it is in building quality and yield in crops.

And How to *Apply* Potash . . .

For best results from starter fertilizer, always place it in bands about 2" below and 2" to side of seed.



Potash is broadcast before planting for both row and sod crops. Topdress to maintain perennial crops.



Use potash-rich fertilizer at grain seeding time. Helps quality, yield of grain, and legume seeding.

PROGRAMS and ACTIVITIES
of
THE AMERICAN POTASH INSTITUTE, INC.

The American Potash Institute is a research and educational organization. Its purpose is to expand the agricultural use of potash on a basis that is sound and profitable to the farmer.

Organized in 1935, the Institute engages in a wide range of activities, and offers many services to farmers and agricultural leaders. These activities and services include: fellowships and research grants in agricultural colleges and experiment stations; fertilizer demonstrations, in cooperation with agricultural extension forces, soil conservation service, county agents, vocational agriculture teachers, and other groups; education in efficient use of potash, through publications, motion pictures, radio, television, books, and advertising. The Institute's monthly magazine, "Better Crops With Plant Food," goes regularly to 24,000 teachers, county agents and other agricultural leaders. Regional newsletters, reprints, and direct service to the farm press also constantly help explain the importance of potash in balanced soil fertility.

Partial Listing of Educational Materials Available from the American Potash Institute

- **Motion Pictures** (16 mm., color)
  - —Potash Production in America (25 minutes)
  - —The Plant Speaks (series of 4 films)
    - . . . Thru Deficiency Symptoms (25 minutes)
    - . . . Soil Tests Tell Us Why (10 minutes)
    - . . . Thru Tissue Tests (14 minutes)
    - . . . Thru Leaf Analysis (18 minutes)
- **Better Crops With Plant Food**
  - —Monthly magazine on soil and crop management.
- **Slide Sets and Film Strips**
  - —Successful Alfalfa—You Can Grow It
  - —Soil Fertility and Soybeans
  - —Potash Deficiency Symptoms
  - —Potash Production in America
- **Wall Posters**
  - —Plant Food Utilization
  - —Potash-Starved Legumes
  - —Corn Starvation Symptoms
  - —Cotton Rust Is Potash Hunger
- **Pamphlets**
  - —Potash Deficiency Symptoms
  - —Potash In Agriculture
- **Reprints of Articles on Soil Fertility**
- **Regional Newsletters**

E. T. York, Jr.
Northeast Manager
1102 Sixteenth St., N.W.
Washington 6, D. C.

You are invited to make use of any or all of these materials. In addition, your regional agronomist will be pleased to be of personal assistance. Call on him.

THE AMERICAN POTASH INSTITUTE, INC.

Dept. 151, 1102 Sixteenth Street, N.W., Washington 6, D. C.

K_2O

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United States Potash Company Division of United States Borax & Chemical Corporation

FARM SERVICE DATA

Extension Station Reports

A new automatic sprayer has been eveloped at the Pennsylvania State niversity for control of biting flies n cattle. Effectiveness of the new ontraption, still in the experimental tage, is being measured in a series f studies directed by Tien-Hsi Cheng, oologist at the Agricultural Experinent Station.

The electric eye-controlled sprayer as fashioned to control horse, stable nd horn flies on both beef and dairy attle. Dr. Cheng says the sprayer an be installed in a shed in or near pasture for treating beef cattle and t the doorway of the stable for dairy ows.

Major parts are a rectangular-haped pipe system with ten nozzles, n electric eye, a flashlight, an elecric motor, and a pump. When an aninal walks through the doorway the eam of light is cut off and the spray- turns on. The sprayer shuts off hen the animal leaves the doorway.

All parts of the animal except the ead are sprayed. Actual spraying ime per animal is from one to two econds. A herd of 100 head can be reated within 10 to 15 minutes. To eep costs down, the equipment can e operated by hand or it can be conected to a tractor-driven weed prayer.

Control of biting flies on cattle oses a serious problem to farmers, Dr. Cheng says. Biting flies can reduce the weight gain of a steer from ne-half to one pound per day and an decrease the milk production of ows from 20 to 40 per cent.

★

To stop peach leaf curl spray while he trees are dormant, say plant disease specialists at the New York State Experiment Station at Geneva.

Numerous complaints are received t the station about outbreaks of this nalady, especially from home owners with only a few trees. "But it is like ocking the stable door after the orse is stolen to try to do anything bout leaf curl after it appears," warn he station workers.

Sprays must be applied after the leaves drop in late fall or very early in the spring before buds begin to swell to prevent infection of next season's leaves, they advise.

The peach leaf curl organism is ound wherever peaches are grown, explain the station scientists. Infection occurs with rain at the time the ud scales separate in the spring and he tender young leaves begin to unold. Diseased leaves are distorted, eddish in color and paler than normal leaves so that diseased trees tand out conspicuously. The leaves ventually turn brown, wither, and drop off.

★

European red mites cause millions f dollars worth of damage to fruit rees annually, but a single prefoliar il spray can markedly reduce the inestation for the entire season, acording to tests at Rhode Island Agricultural Experiment Station.

Early in spring, before the leaves ome out, there are usually at least a few overwintering mite eggs on the rees. They hatch and multiply rapidly under favorable conditions and by harvest time thousands of them may e hungrily sucking the vital juices rom the trees. The resulting devitalized leaves, which have a yellowbrown appearance, affect the future production of the tree.

Results of recent tests at the Rhode Island station show that these harmful mites can be controlled by the application of a prefoliar or delayed dormant oil spray. The trees are sprayed in April, when the leaves are about the size of a mouse's ear, with a miscible oil—an oil which emulsifies instantly in water.

The tests were conducted cooperatively by the plant pathology-entomology and horticulture departments to compare various oils and to verify the value of the prefoliar application. Four "superior" miscible oils were applied at the rate of two gallons in 100 gallons of water to McIntosh, Cortland, Red Delicious and Golden Delicious trees when the fruit buds had one-quarter of an inch of green foliage tips exposed.

Mites failed to develop an injurious level on sprayed trees. They multiplied rapidly between June 1 and August 1 on the unsprayed or "check" trees. These trees also had severely bronzed foliage and poor fruit, and two applications of miticide were required in August to reduce the mite population to a "safe" level.

★

Christmas trees have become an important new farm crop in the north-central and northeastern United States within the past 10 years, says Ray Foulds, University of Vermont extension forester.

For many years farmers have been marketing spruce and balsam trees that have sprung up naturally in cut-over woodlands and lightly grazed pastures, but the business of planting and growing Christmas trees as a crop is relatively new.

No figures are available on the number of Vermont farmers getting into the business, but the names of several are known who have ordered 20,000 or more trees.

Many have ordered Douglas fir, balsam fir, and white fir from private nurseries. Others are raising trees from seed. Others are improving trees which have seeded in naturally by such practices as shearing, weeding, and thinning.

Growers in New Hampshire and Vermont have recently organized to form the New Hampshire-Vermont Christmas Tree Assn. This association will encourage the growing of better quality spruce and fir.

Connecticut Pest Handbook Published

NEW HAVEN, CONN.—The Connecticut Agricultural Experiment Station has announced publication of a 200-page Plant Pest Handbook. Not intended to give detailed information for commercial growers, the new handbook brings together basic information on pests and related injuries that occur on flowers, fruits, ground covers, shrubs, tobacco, meadows, small grains and vegetables.

Included are pests of 223 host plants arranged for quick reference. Completely rewritten from earlier Connecticut Station publications of this type, the new information has been brought together by 12 entomologists and plant pathologists. More than 150 line drawings illustrate the text. Descriptions and biological information on the plant pests are based on observations and research at the station since 1888. Control measures are included.

PENNSYLVANIA CONFERENCE

UNIVERSITY PARK, PA.—A fertilizer and lime salesmen's conference will be held at Pennsylvania State University Jan. 23-25. A panel discussion on "Problems in Converting to the Elemental Basis for Fertilizer Guarantees" has been scheduled.

Books on Pesticides

WEEDS—Second Edition (1955)
W. C. Muenscher

Entire book has been revised and reset, with descriptions of seventy weeds added to the original list of five hundred, plus twelve new full-page plates depicting nineteen kinds. Keys and full descriptions provided for identification with detailed illustrations of 331. Types and sources of weeds, their means of reproduction and dissemination, and the amount of damage they inflict on crops. Specific directions for control, with reference to chemical methods of recent discovery $10.00

CHEMICAL BUSINESS HANDBOOK
Dr. John H. Perry

1,300 double column pages, the equivalent of several average books; 700 illustrations, by 124 contributors. Market research data section is 280 pages, business mathematics 200 pages, financial and accounting 142 pages, research and development 150 pages, sales and advertising 92 pages, twenty sections in all. The book deals with chemical management problems and is useful to technical men, engineers and executives, in the chemical and allied fields. Dr. Perry is editor of the Chemical Engineers Handbook, a companion publication $17.00

INSECT PESTS OF FARM, GARDEN and ORCHARD Fifth Edition (1956)
Leonard M. Peairs and Ralph H. Davidson

A standard text for 44 years. Includes insects affecting grasses, grains, cotton, legumes, vegetables, flowers, fruits, stored products, household goods and domestic animals. Contains a new chapter on insecticide formulations, spray mixtures, application equipment, etc. Material on forty new pest species added, including drastic changes in the illustration. 661 pages $8.50

DDT and NEWER PERSISTENT INSECTICIDES
T. F. West and G. A. Campbell

The first and major part of book is devoted to the physical and chemical properties, manufacture, formulation and applications of DDT. The second part deals with other chlorinated hydrocarbons whose insecticidal properties have been discovered recently and compares these new insecticides with DDT. The preparation of aqueous suspensions, solutions, emulsions, and dusts containing DDT, the compatability of DDT with other insecticides, fungicides and additions are covered in detail. Contains dozens of tables on the solubility of DDT in various solvents, the catalytic activity of accessory substances in the presence of DDT, analogues of DDT, the comparative toxicity, hydrolysis and solubility of DDT analogues, the toxicity of DDT for almost all important insects, etc. Many illustrations $8.50

APPLIED ENTOMOLOGY—Fifth Edition
H. T. Fernald and Harold H. Shepard

This text since 1921 has had an outstanding record of usefulness. The Fifth Edition preserves the general organization and coverage, with changes to improve the presentation and to incorporate new knowledge. Contains chapters on anatomy, physiology and development. The economic importance and control of insects are discussed in a general way with much attention to insecticides. The classification of insects is emphasized, with examples drawn from species conspicuous for being very harmful or decidedly beneficial. Specific control measure included for injurious forms. Last chapter considers other pest animals closely related to insects. 385 pages $7.00

DISEASES OF FIELD CROPS—Second Edition (1956)
James G. Dickson, Professor Plant Pathology, University of Wisconsin

Covers the diseases of cereals, grasses, legumes and fiber plants, which are the major food, feed and fiber sources throughout the world. More than 60 diseases incited by viruses, 40 by bacteria and 300 by fungi are listed and discussed in relation to field crop plants. Identification and information basic to its control, with emphasis on the problems of crop rotation, adaptation and the use of disease resistant varieties. This revised edition includes several new diseases, new illustrations and much recent research in the field $8.50

THE GARDENER'S BUG BOOK (1956)
Dr. Cynthia Westcott

The Complete Handbook of Garden Pests and their control. Information, scientifically accurate but easy to read on 1,100 insects, mites and other animal pests that attack trees, shrubs, vines, lawns, flowers, fruits and vegetables in home gardens. Illustrations in full color. Control measures combine the latest in chemical developments with time-honored cultural measures. Helpful to all who serve the general public and to truck farmers and fruit gardeners. 579 pages, cloth bound $7.50

THE CHEMISTRY AND ACTION OF INSECTICIDES
Harold H. Shepard, Entomologist, U.S. Department of Agriculture, formerly Associate Professor of Insect Toxicology, Cornell University.

Treats the chemistry of insecticides, the history of their use, their commercial importance here and abroad, the nature of the major uses, the influence of environment on effectiveness. Materials are arranged according to their chemical relationships. Two chapters relating to organic compounds largely new as insecticides. Illustrative data in form of tables, and a convenient appendix of equivalents arranged for practical use in the field. 504 pages..... $8.00

WEED CONTROL
W. W. Robbins, A. S. Crafts, and R. N. Raynor

A textbook-manual presenting a modern view of the rapidly developing field of chemical weed control. Reports in detail the research on which most modern herbicide usage is based. Weeds, their reproduction, prevention, biological control, chemicals in weed control. Herbicides, foliage contact applications, hormone-like substances, root applications, evaluations of combinations of chemical applications. Weeds of grasslands and turf. Special weed problems, cropped and uncropped areas. Published 1952. 503 pages, 155 illustrations $8.00

INSECT, FUNGUS AND WEED CONTROL
Dr. E. R. de Ong

The information is grouped according to field of application rather than to chemical composition or nomenclature. Chapters on insecticide label, seed disinfectants, herbicides, forest insects and diseases, livestock insects, and the pests found in household and industry. Fumigation of warehouses, residual sprays and preservatives for fruits, vegetables and wood products are covered. An up-to-date guide on pest control with the needs of operators, agricultural and structural specialists carefully considered. Shippers and warehouse personnel will find the book useful..... $10.00

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What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6525—Soil Product

The Smith-Douglass Co., Inc., is producing a product trade-named Nutro Soil Corrector. Company officials say that the product is "a combination of plant food elements with neutralizing qualities for sour and mineral deficient soils" and is intended for home and garden use. "An increasing tendency toward sour and mineral deficient soils prompted research which developed the new product," company officials said. Secure complete details by checking No. 6525 on the coupon. Clip and mail it to Croplife.

No. 6526—Nematode Chart

A new nematode chart intended to be used as a quick and handy reference to more than 50 species of nematodes, their common names and the plants they attack has been prepared by the Shell Chemical Corp. The chart can be used on the wall or underneath the glass top of a desk. Listed on the chart are cyst forming nematodes (cysts cover the eggs), endoparasitic nematodes (those that enter the root tissue or permanently attach themselves to it) and ectoparasitic nematodes (those that feed on the root surface and normally do not enter the root tissue). Included also are above-ground feeders. The chart may be secured without charge by checking No. 6526 on the coupon and mailing it to Croplife.

No. 5615—Seed Protectants

Two seed protectants for slurry application are now available from Panogen, Inc. They are trade named Panoram D-31 and Panoram 75 and are said to possess excellent suspension qualities. Panoram D-31 is a combination insecticide - fungicide and is recommended as a seed treatment for corn, soybeans, sorghum, beans and peas. Active ingredients are thiram and dieldrin. Thiram protects against various seed and soil-borne diseases, while dieldrin protects seeds and seedlings from injury by wireworms, seed corn maggots and other destructive soil-dwelling insects. Panoram 75 is a seed disinfectant for treating corn, rice, sorghums, soybeans, grasses, legumes and vegetables. Active ingredient is thiram. The manufacturer says Panoram 75 can be expected to increase stands and improve yields by protecting from seed and soil-borne diseases causing seed decay, damping-off, seedling blight and root rot. Secure more complete details by checking No. 5615 on the coupon and mailing it to this publication.

No. 5624—Conveyor

The Burrows Equipment Co. has developed a conveyor, called by the trade name, Cost Cutter, for the feed and fertilizer trade. The conveyor has either aluminum, steel or stainless steel frame and is available in 8-18 in. belt widths and lengths of 4-40 ft. One of the 22

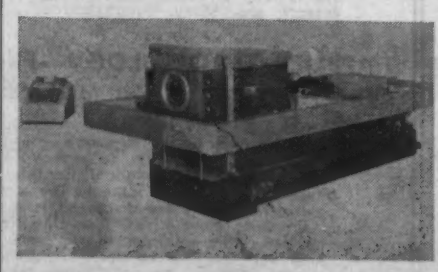
standard undercarriages can meet any special application, it is claimed. The streamlined light weight unit has no sharp corners and features a direct chain drive from gear motor to sprocket which eliminates the use of V-belts and countershafts, it is announced. To secure a 4-page booklet and complete information check No. 5624 on the coupon, clip and mail it.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 5622—Weighing Belt Feeder

The Thayer Scale & Engineering Corp. has developed a new continuous weighing belt feeder for the basic material processing industries. Based on the patented Thayer leverage system, which has no knife-edge pivots, the unit is claimed to have outstanding accuracy and performance characteristics. Knife-edge pivots have been eliminated. The continuous weighing feeder has been designated as model 1200C and can be



furnished for handling materials such as rock salt, phosphate rock dust, ammonium nitrate and other fertilizers, grains, flours and any other material which may have flow characteristics varying from free flowing to sticky. The unit can be furnished in various sizes for handling production rates from hundreds of pounds per hour to hundreds of tons per hour. A weight totalizer is furnished with the unit and a rate indicating dial is furnished in the face of the scale. This dial indicates the exact rate of feed through the unit at any given instant. Chart recorders for mounting on the scale or for remote mounting can be furnished to indicate the rate of material weighed and the accumulative weight handled at any period of the day. A load-out counter can be furnished so that the feeder can be set for any given tonnage and when that tonnage has been weighed through the feeder, the feeder will automatically stop and an electrical signal will indicate that the total desired load has been weighed. An adding machine can be furnished with the unit. Secure more complete details by checking No. 5622 on the coupon and mailing it.

No. 5619—Sack Cleaner

Bulletin 137-A is a new publication released by Sprout, Waldron & Co., Inc., which gives the details on its line of sack cleaners. All of the units of these sack handling systems are steel constructed and are such that installation can be made to suit any available space or individual preferences. The cleaning cage of each sack cleaner can be located in any corner of a building, warehouse or outside on a loading platform with the fan and collector placed overhead nearby or at some remote point. A safety cage or basket is provided on each of these units to prevent sacks from entering the system. The bulletin will be sent if you will check No. 5619 on the coupon and mail it to this publication.

No. 6524—Pyrethrum Booklet

African Pyrethrum Development Inc., has prepared a booklet entitled "Pyrethrum Facts for 1957" and describes it as the "authorized and authoritative wrap-up of pyrethrum covering the current crop year. The booklet includes such information as Applications, development, formulations in which it is used as a base production and sales figures and the production outlook. The booklet is available without charge. Check No. 6524 on the coupon and mail it to Croplife.

No. 6523—Compost Grinder

Literature concerning the use of a compost grinding machine for garden or small farm use has been prepared by the W-W Grinder Corp. The machine, which is available for marketing through retail dealers, mills and screens both green and dry materials, breaking them into tiny quarter size pieces. Its screen also sorts out rocks and other undesirable material from the raw compost. Compost grinding screens come in various sizes. The most practical for home use is said to be a portable 2-X model, equipped with a 2½ h.p. retrievable started engine. The larger 4-EV model is suitable for commercial use, and comes with a detachable elevator, so that either the grinder or the elevator can be used independently of the other. Models come equipped with either a gasoline engine or electric motor. Check No. 6523 on the coupon and mail it to Croplife to secure complete details.

No. 6521—Liquid Fertilizing Machine

A new liquid fertilizing machine which permits the simultaneous subsurface application of anhydrous ammonia and other liquid fertilizers such as phosphates or complete solu

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☐ No. 5602—Conversion Kit	☐ No. 6520—Granulator
☐ No. 5615—Seed Protectants	☐ No. 6521—Liquid Machine
☐ No. 5619—Sack Cleaner	☐ No. 6522—Wall Chart
☐ No. 5622—Belt Feeder	☐ No. 6523—Compost Grinder
☐ No. 5624—Conveyor	☐ No. 6524—Pyrethrum Booklet
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☐ No. 6519—Spreader	☐ No. 6526—Nematode Chart

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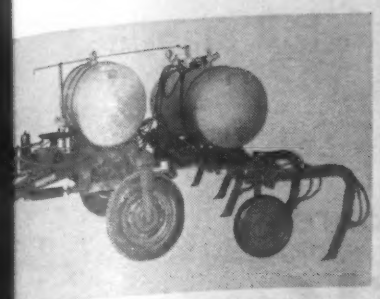


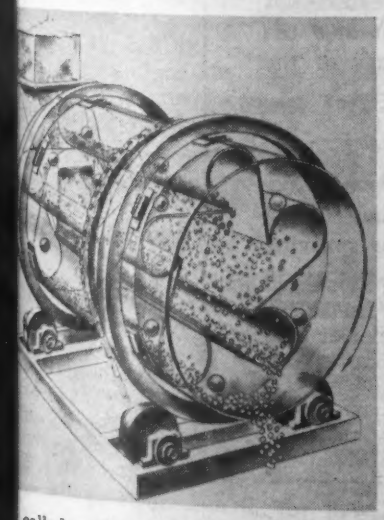
ns has been developed by the mpster Mill Mfg. Co. The applica-r, named the Dual LiquiJector, con-ts of the Dempster No. 500 3-point ch hydraulic lift carrier whereby solution tank with metering pump mounted on the No. 500 carrier d the 150-gal. anhydrous ammonia nk with a flow valve control is unted to the square bar. This per-its the distribution of both solution d anhydrous ammonia to be de-sited under the soil in one opera-n. Different types of the company's uid solution pumps and tanks can furnished for handling either cor-sive or non-corrosive material. rincipal advantages claimed for the plicator are the time and labor vings resulting from the simultane-s application and the even distrib-ion at one time of the two types of uid fertilizers. By using this ma-ine additional NH_3 can be injected to the soil to supplement the nitro-n content with any of the other uid fertilizers and nitrogen-free lutions can be used to advantage the second unit, company officials aim. Secure details by checking No. 21 on the coupon and mailing it.

o. 6522—Wall Chart

Up-to-date instructions for the safe loading and handling of sulphuric id are presented on a new 17 by 22-wall chart available through the dustrial chemicals division of the lin Mathieson Chemical Corp. The art is printed in red and black on ecial moisture-resistant paper in sy-to-read form, according to com-ny officials. It describes step by ep the proper methods for pump un-ading and air unloading of tank rs, with special attention to cold eather procedure. Diagrams of pip-g arrangements are shown for both ethods, as well as a list of safety o's" and "don't's." The chart also cludes instructions for preparation tank cars for the return trip to the anufacturer. To secure the wall art check No. 6522 on the coupon d mail it to Croplife.

o. 6520—Granulator

A new type of granulator, the ckett Star Granulator, has been troduced to the fertilizer industry, cording to officials of the A. J. ckett & Sons Co. Featuring what



called a new concept in granula-n equipment design, the granu-tor is equipped with five curved ffles on the interior of the ma-ine. Action by these baffles violent-rolls and tumbles the material rough the machine, substantially creasing product recovery, efficiency d reducing the costs of production, cording to Sackett. Several of the anulators already are in action in industry and were the subject of a discussion by Albert Spillman, Fertilizer Manufacturing Cooperative, Inc., at the recent meeting of the Fertilizer Industry Round Table in Washington, D.C. The Sackett company indicates U.S. and foreign patents are pending. The accompanying photograph illustrates the design and action of the granulator. For further information please check No. 6520 on the coupon, clip and mail it to Croplife.

No. 6518—Adsorbents

The Floridin Co. has produced a booklet describing its products for agricultural chemical processing. The products are trade-named Diluex, Diluex "A," Florex and Florigel. The products' action in agricultural and household pesticide formulations is outlined. The use of several products as adsorbent carriers in the formulation of granular pesticides is described as is the formulation processes in frequent use. Check No. 6518 on the coupon and mail it to secure the booklet.

No. 6519—Combination Spreader

The Highway Equipment Co., Inc., announces its "New Leader" engine driven combination spreader. The announcement states: "It affords a new convenience to the driver by the very accessible engine location, also a larger engine with more horsepower for spreading maximum tonnage of lime and other agricultural products. A new direct drive from the engine direct to the distributor discs eliminates the use of chains, sprockets, idlers and some bearings." For further information check No. 6519 on the coupon and mail it to Croplife.

No. 5602—Conversion Kit

Instant change-over of dust seed treaters to handle ready-mixed liquid seed treating chemicals is now possible through use of a new conversion kit manufactured and sold by Panogen, Inc. Chief advantages claimed for the kit are that it requires only a few minutes to install, converts all standard dust treaters so they can be used for applying liquid Panogen, permits accurate regulation of dosage and eliminates dust. The kit includes all the components needed to convert a dust treater to Panogen operation. Each kit is accompanied by a simple chart for computing the correct rate of flow so that proper dosages are easily maintained. The chemical will not freeze or burn. Secure more complete details by checking No. 5602 on the coupon and mailing it.

OVER THE COUNTER

(Continued from page 9)

means better business and more of it.

The clothing store which stocks rubbers, but never displays them outdoors except on rainy days, is not going to sell as many as the store which displays them outdoors on both rainy and sunny days. Some thrifty souls buy a pair just to be prepared for the rainy weather. Of course, the largest volume of rubbers will be sold on rainy days when the unprepared public flocks to buy. But the merchant who sells rubbers on sunny days already has a sizable number of sales, a volume to which he can add with the sale of rubbers made on rainy days.

There are many farmers in your area who may not think of ordering fertilizer and other materials in advance. They are often too busy with other farm duties. But if you approach them on the advantage of buying on such a basis, you may pave the way for some excellent business volume, volume that you may not otherwise get.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

A bill introduced into Congress proposed an examination of TVA's fertilizer manufacturing activities from the standpoint of determining the real costs involved in production; how these factors should be taken into account in reaching a price for the fertilizer material; and the approximate annual amount of taxes which would be obtainable if the fertilizer production facilities were owned by private enterprise. The bill was introduced by Bruce Alger, Texas Republican.

Diamond Black Leaf Co. began a major modernization-improvement program at its plant in Des Moines, Iowa.

Four New England chemical and fertilizer companies merged as of Jan. 1. They are Apothecaries Hall Co., Waterbury, Conn.; Rogers & Hubbard Co., Portland, Conn.; Woodruff Fertilizer & Chemical Works, Inc., North Haven, Conn.; and the Old Deerfield Fertilizer Co., South Deerfield, Mass. The name of Apothecaries Hall Co., the surviving corporation, has been changed to Hubbard-Hall Chemical Co.

A newly-formed enterprise at Seattle, Washington, was begun Jan. 2 with a new line of products for farmers and gardeners in the Pacific Northwest. Known as Pacific Agro Co., the company's officers are R. W. Cool, Tonasket, Wash., president; Robert H. Allard, vice president and general manager; and Lee Fryer, vice president and manager of the plantfoods division.

Over 2 million acres of forest land were treated for the control of insects and plant diseases during 1956, USDA announced.

Farms reporting in the recent U.S. bureau of the census survey showed that they increased fertilizer consumption by about 50% in the ten year period between 1944 and 1954. Industry leaders were quoted as looking on the future of fertilizer sales with optimism. The need for lowering unit cost of producing farm products will make fertilizer use an increasing necessity in the future.

Sam L. Nevins, vice president of Olin Mathieson Chemical Corp. stated that the adoption of NPK symbols for expressing plant food values would give manufacturers of chemical fertilizers the "greatest boom in their sales history." He said that the present system of reporting fertilizer components as oxides is confusing and unnecessary.

The Entomological Society of America in its annual meeting in New York, reported results of insecticidal experiments conducted during 1956 in various parts of the country. Systemics, granules, and soil insecticides were pointed out as being increasingly important in pest control.

Santford Martin, Jr. was appointed head of publications and director of publicity for the American Potash Institute, Washington, D.C., the Institute announced. He succeeds R. H. Stinchfield, who retired Jan. 1 after having held the position since the Institute was formed in 1935.

Carry-over stocks of pesticides as of Sept. 30, 1956, were larger than they were on the same date in 1955, the USDA announced. Carry-overs in the hands of basic producers increased more than did formulators' inventories, the report said. Some chlorinated hydrocarbons were up over 90%, whereas formulators' stocks increased only 20%.

The executive committee of the National Plant Food Institute said that it looks "with disfavor" on a proposed change in reporting the phosphate and potash content of fertilizers as "P" and "K", rather than P_2O_5 and K_2O. A resolution passed by the committee stated that the Institute should act as a clearing house and make available to all parties, including state officials and state legislatures, any information on the subject.

Despite the fact that fewer acres were used in agriculture in 1956, farm output in that period equalled previous records in 1948 and again in 1955. The 1956 crop was grown on the smallest acreage in 20 years.

The output of sulfur reached new highs in 1956, and exports of the mineral held near the record levels of the past few years. Consumption in the U.S. was estimated at 5,900,000 tons in 1956, as compared to 5,650,000 the previous year. Exports were expected to reach about 1,600,000 tons.

Fred M. Stewart, vice president and general manager of Agricultural Ammonia Service, Inc., Santa Paula, Cal., became president of the Agricultural Ammonia Institute on Jan. 1. He is the first westerner to head the Institute.

The Interstate Commerce Commission granted freight rate increases of 7% and 5% for eastern and western territories, respectively, to the railroads. Despite strong protests from the fertilizer industry, the increase was allowed. Observers in Washington and in other parts of the country predicted that this will force much of the industry to depend on trucks for both long and short hauls of materials.

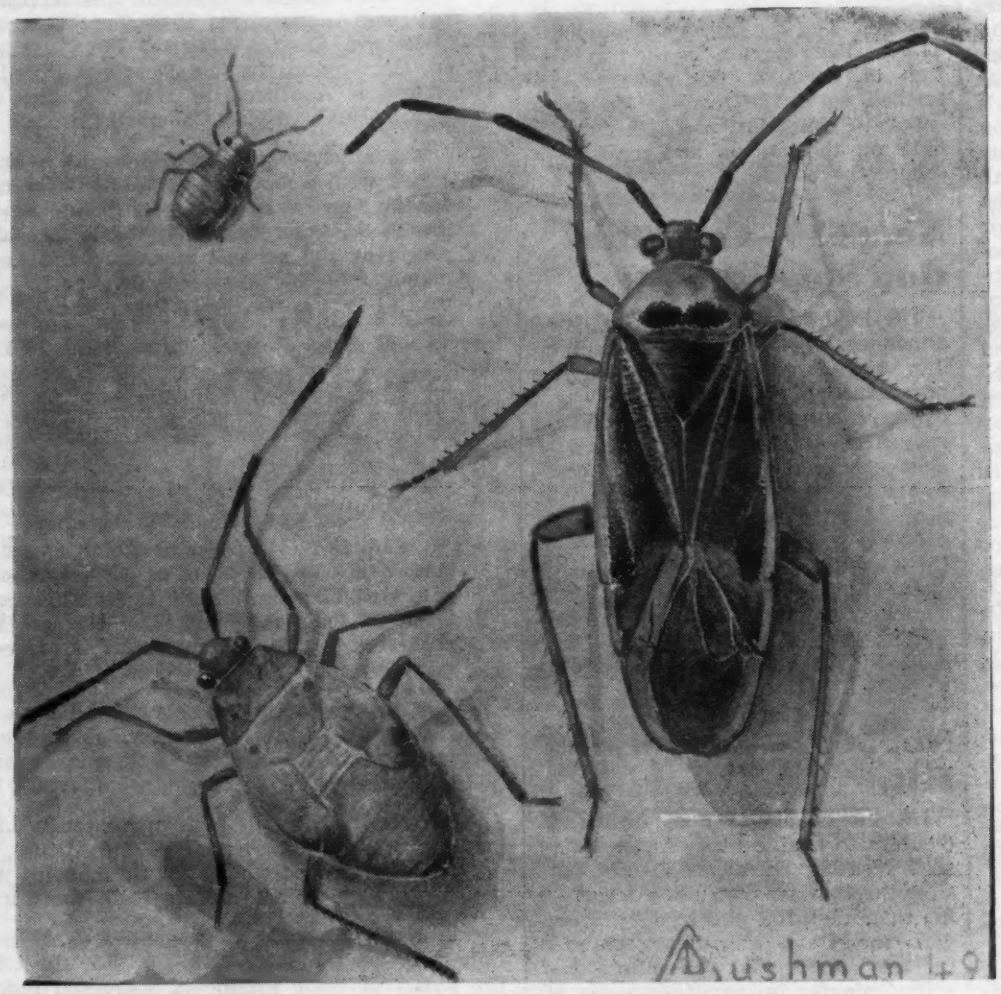
The Tennessee Valley Authority announced that it had developed a process for shortening the time to produce superphosphate suitable for immediate use in mixed fertilizers, thus doing in 1½ hours a production job that would normally require weeks of curing.

Insect resistance was reported to be on the increase by speakers at the Cotton Production Conference held at Birmingham, Ala. in December. Stress was placed on the need for more research to find answers to many questions concerning resistance and other problems of insect control in cotton. Reports were also made on the progress made in experiments with systemic insecticides which were regarded as successful in 1956 tests.

A hearing before the Interstate Commerce Commission was held in Kansas City the last of November, giving the fertilizer industry an opportunity to testify against the rail carriers' demands for higher freight rates. Industry representatives indicated that the fertilizer economy could not tolerate further increases in hauling costs, and if rates were to be advanced, many firms would be forced to find other means of transportation.

Mr. Dealer—Cut out this page for your bulletin board

BUG OF THE WEEK



Rapid Plant Bug

How to Identify

The adult rapid plant bug is small, being only about a third of an inch long. Its color is dark brown and the insect is characterized by a narrow yellow band along the sides of the body. In its early stages, the bug is light green with reddish markings.

Habits of Rapid Plant Bug

Eggs laid by the adult female are found usually imbedded in the stems of plants and the winter months are passed while the insect is in the egg stage. Several generations of rapid plant bug come into being each year.

Damage Done by Rapid Plant Bug

Equipped with piercing-sucking mouth parts, the rapid plant bug injures cotton by piercing squares and young bolls. The greatest loss is through destruction of young squares, producing injury similar to that characteristic of the cotton fleahopper. Some damage occurs through piercing the terminal buds, leaves and stems of the plants, resulting in malformations. Its damage is similar to that caused not only by the cotton fleahopper, but also the tarnished plant bug and other bugs of the lygus family.

Control of the Rapid Plant Bug

Toxaphene as a spray or dust has proved effective in control of the rapid plant bug (Adelphocoris rapidus (Say)). Dusting or spraying with DDT has also been used with success in control of the pest. Heptachlor is approved and recommended in many cotton insect control schedules.

Illustration furnished Croplife through courtesy of Hercules Powder Co., Wilmington, Del.

Previous "Bug of the Week" features have been reprinted in attractive 24-page booklet, priced at 25¢ single copies; reduced rates in quantities. Write Croplife Reprint Dept., Box 67, Minneapolis 1, Minn.

CA Requests Bids or Pesticides nd Fertilizers

WASHINGTON—The International Cooperation Administration announced on Jan. 11, 1957, authorizations totaling $60,234,000 for materials for Iran, Korea, Turkey, Taiwan (Formosa) and Vietnam.

Of this total, a considerable portion includes fertilizers and pesticides.

For Korea, the authorization calls for purchases of fertilizers for three delivery dates in 1957, as follows:

June 30, 1957, nitrogenous fertilizer, $14,707,500; potash, $453,000; phosphate and other fertilizer materials, including mixed fertilizers, $3,339,250.

July 31, 1957, nitrogenous fertilizers, $4,500,000; potash, $150,000; phosphates and other fertilizer materials, including mixed fertilizers, $350,000.

For Aug. 31, 1957, nitrogenous fertilizer, $7,000,000; potash, $280,000; phosphate and other fertilizer materials, including mixed fertilizers, $2,000,000.

For Vietnam, under the delivery date of Oct. 31, 1957, potash will be purchased in the amount of $100,000; phosphate and other fertilizer materials, including mixed fertilizers, $75,000, and nitrogenous fertilizers, $100,000.

Agricultural pesticides are also included in the Vietnam authorization. With a delivery date of Aug. 31, 1957, pesticides in the amount of $100,000 are authorized.

Other authorizations included in the ICA announcement include items such as wheat, barley, paints, dyes, cotton and non-metallic minerals. Sources of these items are worldwide.

Barter provisions are described as follows: "Any offer to supply commodities hereunder, involving a sale price of $100,000 or more, made on a bid basis pursuant to an invitation for formal bids, and which express willingness to accept surplus agricultural commodities from the Commodity Credit Corp. as full payment in lieu of dollars, shall have preference over any other bid/offer where price and other terms of the bid/offer are equal."

Korea Receives ICA Authorization

WASHINGTON—International Cooperation Administration has announced a $150,000 authorization to the Republic of Korea for phosphate rock fertilizer. The contract period ends May 31, and the terminal delivery date is June 30. Source is worldwide. The announcement carries a barter provision.

Bagpak Opens Sales Office in Arkansas

NEW YORK—A. A. Scholl, general manager of the Bagpak Division of International Paper Co. has announced the opening of a new sales service office in Camden, Ark. Bagpak manufactures multiwall shipping sacks. The manager of the new office, located at 121 Jefferson St., S.W., will be T. A. McCord.

According to Mr. Scholl, the new office will coordinate the production of sales orders between Bagpak's nationwide customers and their producing plants at Camden, Bastrop, La., and Mobile, Ala. Opening of the office in Camden is the latest in a series of reorganizational changes aimed at improving service to the division's customers. Recently, the Bagpak Division opened regional sales offices in Baltimore, Chicago, New Orleans and Denver.

BUDGET

(Continued from page 1)

from four million dollars in the fiscal year ending June 30, 1957 to one million dollars for the fiscal year 1958.

Pest control officials see the smaller budget as the mark of success in their control activities for the Medfly and khapra beetle. These infestations erupted without prior warning and required heavy disbursements by the USDA forces to survey the area of infestation, to develop control techniques and to move with full steam ahead to wipe out the pests.

Despite the budget cut for pest control service directly, USDA officials are confident that they have attained dominance over both these two major pests of recent years. USDA officials now see the medfly under control, and the problem now is one of mopping up and some further trapping of the pest in a relatively small area of about 30,000 acres. Originally the infested area covered more than 600,000 acres, some index of the speed and efficiency with which the USDA forces moved once they got their forces lined up.

As regards the khapra beetle USDA has had equally rapid success. It now reports that within six weeks it will have treated and wiped out the khapra beetle in every known point of infestation.

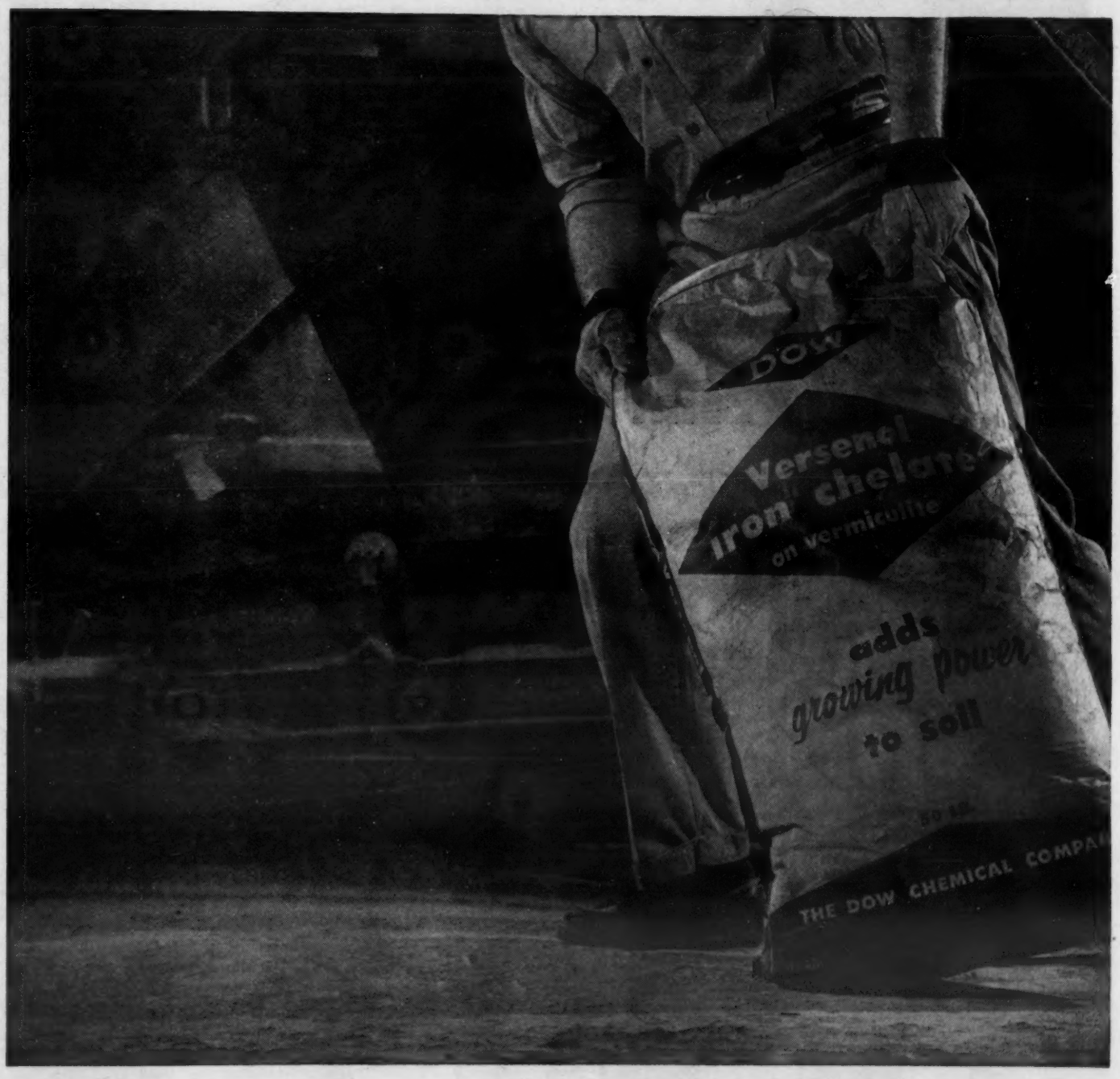
While USDA officials speak with natural pride of accomplishment they inferentially confer credit to the materials which were used as destructive vehicles for the insects.

At the main pest control offices of USDA officials say that the soybean nematode is another unknown area. It has been identified for some time in North Carolina, but subsequent discoveries in Tennessee and Missouri are troublesome and alarming since those regions are dangerously close to the major soybean belt.

USDA now aims to control these infestations through some form of quarantine methods to check further expansion. Control officials suspect transmission occurs through soil shipments in some form or other from an infested to a new area.

Fewer Borers Threaten Illinois Canning Crops

URBANA, ILL.—From one half to one ninth as many corn borers are overwintering in Illinois canning crop areas now as a year ago. W. H. Luckman, entomologist with the Illinois Natural History Survey, reported these figures to those attending the recent Illinois Canners school. Mr. Luckman said that damage by first-generation corn borers would probably be less severe in 1957, particularly if the weather is unfavorable.



Iron-clad protection for repeat fertilizer sales

with VERSENOL IRON CHELATE

The best way to be sure iron deficiencies of soil won't keep your formulations from performing at their best is to include VERSENOL® IRON CHELATE . . . your iron-clad protection for repeat sales.

Just small amounts of VERSENOL IRON CHELATE, an organic form of iron, correct deficiency in either acid or alkaline soils. It's a more effective, longer lasting method of supplying iron than the inorganic sulfates. Whether your customers are citrus growers, truck gardeners, nurserymen, greenhouses, landscapers or home gardeners, they'll be quick to notice the difference VERSENOL IRON CHELATE makes. Plants turn and stay a healthy, rich green. Growth is improved. Bloom is enhanced. And the other elements in your fertilizers work to best advantage . . . and to your credit.

Dow makes two formulations: VERSENOL IRON CHELATE and VERSENOL IRON CHELATE on Vermiculite. The Vermiculite formulation is easy to mix with dry fertilizers and actually flow-conditions your regular fertilizer for easier application. The concentrate can be mixed into liquid formulas. For further information, write directly to: THE DOW CHEMICAL COMPANY, Agricultural Chemical Sales Dept., Midland, Michigan.

WEED AND BRUSH KILLERS, SOIL FUMIGANTS, GRAIN FUMIGANTS, INSECTICIDES, FEED ADDITIVES, ANHYDROUS AMMONIA, DEFOLIANTS.

Dow presents
THE RED FOLEY SHOW
every Saturday. See radio listing for time and station.

YOU CAN DEPEND ON DOW

Trend Toward Larger But Fewer Dairy Farms Continues

WASHINGTON—It's not something entirely new, but, says the U.S. Department of Agriculture, the trend toward larger but fewer dairy farms is something which bears watching as it is a definite part of the outlook picture for dairy farming.

The trend has been going on for at least 15 years, but it has been speeding up since 1950. Actually, of course, this development is part of the over-all trend toward more specialization in agriculture.

USDA says information now available from the 1954 Census of Agriculture shows that the trend toward larger but fewer dairy farms has continued into the middle fifties. In 1954, less than 3 million farms reported any milk cows, compared with 3.6 million in 1950 and 4.6 million in 1940.

The average number of cows per farm was 6.9 in 1954, about 20% higher than in 1950 and 30% above 1940. Similar changes occurred in all regions of the U.S. However, not shown in such averages are changes in some of the more important areas.

In some respects, the trend can be seen better by looking at changes in the proportions of farms with herds of different sizes. On this basis, also, the trend has been away from smaller herds and toward the larger ones. In 1939, more than 85% of the U.S. farms having milk cows had less than 10, and only about 3% had 20 cows or more. In 1949, about 5% had 20 or more cows, but in 1954, as seen in reports for several important dairy states, the percentage was much higher, according to USDA.

Will the trend toward larger but fewer dairy farms go on for the rest of this decade and into the 1960's? Perhaps the best way to answer this question, says USDA, is to examine the major influences behind the trend.

The movement toward larger dairy herds has been influenced by many things. Most important, perhaps, has been the impact of improved technology on feed production, feed handling, labor utilization and other phases of dairy farm management, according to USDA. In combination, these improvements have made it both possible and profitable for dairy farmers to expand their herds. In fact, the new methods usually require expansion if full advantage of them is to be taken. At the same time, they usually require the investment of additional capital, which no doubt has been a factor in the decision to discontinue dairying that many farmers have made.

Thus, technology influences farmers in both directions—some to expand their herds, others to go out of dairying. As noted above, the result has been larger but fewer dairy farms. So far as the total number of dairy cows is concerned, the two movements tend to be offsetting. The net effect in the last five years has been a slight decline in total numbers.

The same technological developments, however, also affect production per cow. They have contributed materially to the rather substantial increase in production of milk per cow that has occurred in recent years. The rate in 1956 is expected to reach an average of 6,000 lb. per cow, compared with less than 5,000 lb. 10 years ago. This large increase in output per cow has more than offset the decline in cow numbers and the rate may go to another new record in 1957. To some extent the increase in milk produced per cow may have been the result of the trend toward concentration of cows in larger herds where better-than-average management can be expected.

As for the future, there is little doubt that technological progress will continue. Present technical knowledge will be adopted more widely by dairy farmers as the profitability of high-producing cows becomes more generally recognized. New technology developed by research also will be used.

Thus, for the next five to ten years at least, it seems likely that the impact of technology will continue, as in the past, to stimulate the trend toward larger but fewer dairy farms, more milk per cow and greater total milk production. Other influences, such as price relationships, will also be felt, but they are not likely to shift the direction of the trend unless the over-all economic situation changes materially.

Sales appeal for Premium quality Money-making fertilizers

S·P·M

Give your fertilizers new sales appeal with a new merchandising development in the fertilizer industry . . . Sul-Po-Mag's SPM Premium identification program. Increase your profits . . . *and* the profits of farmers who use your SPM Premium-type fertilizers.

More bushels of potatoes and corn, more and better colored fruit, bigger yields of carrots, cucumbers, tobacco, citrus . . . nearly every crop does better with premium quality fertilizers containing Sul-Po-Mag. "SPM" supplies the water soluble magnesium and premium quality sulphate of potash for deficient soils. Farmers are learning about SPM through complete national and regional farm paper plus widespread radio advertising.

Manufacturers of premium quality fertilizers containing Sul-Po-Mag can have new sales-developing materials to help sell more of their premium quality fertilizers . . . profitably. Talk to your Potash Division representative . . . or write the Potash Division.

Your guarantee of premium quality fertilizer.....
We display and use this S·P·M Seal of Approval as your guarantee that our S·P·M Premium fertilizers contain genuine Sul-Po-Mag
S·P·M PREMIUM

SPM Premium-type fertilizers guarantee Sul-Po-Mag

Water-Soluble Double Sulphate of Potash-Magnesia
($K_2SO_4 \cdot 2MgSO_4$) 22% K_2O – 18% MgO

potash division

INTERNATIONAL MINERALS & CHEMICAL CORPORATION
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GLF Announces Crop Demonstration Program

ITHACA, N.Y.—All Future Farmers of America in New York have been invited to take part in the fifth annual FFA crop demonstration program to illustrate improved farm practices. Some 320 announcements of the 1957 program were mailed to every school with a vocational agriculture department. Similar announcements are on their way to FFA chapters in New Jersey, where the program is in its fourth year.

The program is sponsored by the Cooperative G.L.F. Exchange, Ithaca, and G.L.F. service agencies. Chapters enter as a group and all the boys in a chapter help plan, plant, cultivate and harvest crops on plots comparing latest recommended practices with the usual method used in the area. Demonstrations in other years have illustrated benefits of new seed varieties, fertilization, chemical weed control and similar cultural practices.

G.L.F. retail agencies provide up to $30 worth of materials for demonstrations. G. L. F. awards $50 prizes to chapters that finish in the top 10% and $25 to those judged in the second 10%.

New York chairman of the demonstration committee is Harold Noakes, associate chief of the New York Bureau of Agricultural Education.

Other New York committee members are: Samuel R. Aldrich, head of agronomy extension at Cornell University; Walter L. Griffeth, Cornell extension agronomist; C. W. H. Cornell agricultural education division chairman; Alvin A. Johns, Cornell head of plant breeding department; Elliot Johnson, Phelps, president of the Association of Teachers of Agriculture of New York; C. C. Lowe, Cornell plant breeding extension specialist; R. C. S. Sut, chief of the State Bureau of Agricultural Education; Harlo P. Beals, Merrill N. Knapp and Paul Taber of G.L.F.

Edwin Roth | N. L. Redding | J. M. Seymour | R. W. Lassiter | S. D. Daniels | J. H. McNeill

Monsanto Names 7 to New Technical Service Group

ST. LOUIS, MO.—Monsanto Chemal Co. has announced the formation a technical service group including ecialists in all phases of operation fertilizer plants. According to Tom Smith, Jr., divisional director of arketing, the new group will be a rt of the sales organization for ricultural chemicals in the comny's inorganic chemicals division.

Seven individuals were named to e new group, including Dr. William Bone, who will be manager of the ganization.

Mr. Smith said that the group as organized as a "natural step llowing the integration in the ivision of the selling responsibility or various forms of phosphorus roduced by Monsanto, and the nirogen products which came with he merger with Lion Oil Co."

Those in the new group include two former fertilizer plant managers and two research specialists in the field. In the group in addition to Dr. Bone are Robert W. Lassiter of El Dorado, Ark.; S. D. Daniels of St. Louis; Dr. Edwin Roth of Anaheim, Cal.; James M. Seymour of Collinsville, Ill.; J. Howard McNeill and Nicholas L. Redding of St. Louis.

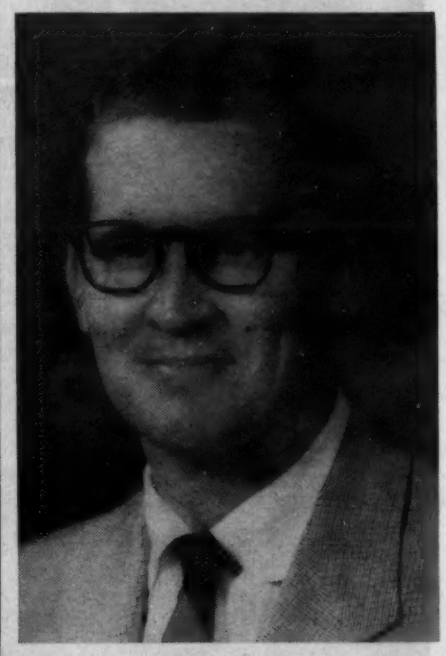
Dr. Bone, who previously was a technical service representative in the industrial sales department of the division, has B.S. and M.S. degrees from the University of Illinois school of agriculture and was with a fertilizer manufacturer before joining Monsanto in 1952.

Mr. Daniels, who will assist Dr. Bone in St. Louis, previously was manager of the General Fertilizer Co., Fremont, Neb. He will have prime responsibility for the new program of customer service made possible by utilization of the company's IBM 702 in fertilizer formulation. Use of this electronic "brain" permits solving in a few seconds lengthy mathematical and chemical problems which used to require hours. Mr. Redding, a recent graduate of Iowa State College with a B.S. degree in chemical engineering, will work with Mr. Daniels on this program.

Mr. Lassiter, a graduate of Texas A&M College with a B.S. degree in agriculture, previously was technical service representative for Lion Oil Co. in the area near El Dorado. He will remain in El Dorado.

Mr. Seymour was director of research for Illinois Farm Supply Co. until joining Monsanto recently and Mr. McNeill for several years was plant manager for Missouri Farmers Assn. Since 1955 he has been production manager of the Summers Fertilizer Co. plant at Sioux Falls, S.D. Both will work on customer problems in the midwest area.

Mr. Roth, previously was senior chemist in agricultural research for the Grand River Chemical Division of Deere & Co. at Pryor, Okla. He will remain in the California region.



William R. Bone

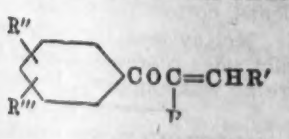
Industry Patents and Trademarks

2,766,198

Preparation of Phosphate Fertilizer d Animal Feed Supplement. Patent ued Jan. 1, 1957, to Forrest L. rbett, Joplin, Mo., assignor to Spenr Chemical Co., Kansas City, Mo. he process of reacting monoammonin phosphate containing about 61.8 rts by weight P_2O_5 per 100 parts by eight of pure monoammonium phosate with raw phosphate rock conining up to about 35 parts by weight O_5 per 100 parts by weight of raw ck in a monoammonium phosphate raw rock ratio in the range of out 1.77 to 1 to 5.1 to 1 on one rt by weight of contained P_2O_5 sis at a temperature in the range of ove 200° C to about 400° C. and a essure of about one atmosphere abolute to produce a reaction mass coning more citrate soluble P_2O_5 than at introduced by the monoammonin phosphate.

2,776,921

Unsaturated Alkylphenone Insectides for Soft-Bodied Insects. Patent ued Jan. 8, 1957, to Sidney Mened, Philadelphia, assignor to ohm & Haas Co., Philadelphia. The ocess of controlling soft bodied incts on plants which comprises apying there to a composition comprisg an alkylphenone of the structure



herein R is a member of the class nsisting of hydrogen, chlorine, and e methyl group, R′ represents a ember of the class consisting of hyogen and the methyl group, R″ presents a member of the class conting of hydrogen and alkyl groups one to four carbon atoms, and R‴ presents an alkyl group of three to fifteen carbon atoms, the sum of carbon atoms in R″ and R‴ being at least four and not over sixteen, said alkylphenone being dispersed in a carrier therefor.

2,776,922

Synergistic Zinc Mercaptobenzothiazole and Zinc Dimethyl Dithiocarbamate Fungicidal Composition. Patent issued January 8, 1957, to Albert A. Somerville, Carmel, N.Y., assignor to R. T. Vanderbilt Co., Inc., New York. A composition of matter comprising a synergistic fungicidal mixture of the zinc salt of 2-mercaptobenzothiazole and zinc dimethyl dithiocarbamate.

Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of $25 must accompany each notice of opposition.

Gallotox, in heavy capital letters, for liquid seed disinfectant for wheat, barley, oats, flax, and cotton. Filed March 14, 1955, by Gallowhur Chemical Co., New York. First use on or about Jan. 7, 1955.

Speed-E-Weed, in stencil capital letters, for chemical weed exterminator. Filed Sept. 20, 1955, by Garfield Williamson, Inc., Jersey City, N.J. First use Feb. 1, 1955.

Jasco, in tall capital letters, for wood preservative. Filed March 12, 1956, by Jay S. Conley, doing business as Jay S. Conley & Co., Mountain View, Cal. First use July 15, 1947.

Nitro-Green Liquid Plant Food, with lettering superimposed over drawing of leaf, for liquid, plant, shrubbery and tree plant food fertilizers. Filed Nov. 22, 1954, by Nitro-Green Fertilizer Co., Ft. Dodge, Iowa. First use Oct. 11, 1954.

Micronized, in capital letters, for insecticides and fungicides. Filed Oct. 2, 1956, by Pittsburgh Plate Glass Co., Pittsburgh, Pa. First use Feb. 17, 1937.

Wonderlawn, in capital letters, for fertilizer, turf builder and lawn food. Filed April 18, 1956, by Garfield Williamson, Inc., Jersey City, N.J. First use January, 1956.

Drawing of Indian head within concentric circles, with arrow, for liquid fertilizer. Filed June 6, 1956, by Ouachita Fertilizer and Chemical Co., Monroe, La. First use Nov. 15, 1955.

Stock-Tox, in capital letters, for livestock spray. Filed Jan. 27, 1956, by C. J. Martin & Sons, Inc., Austin, Texas. First use in 1950.

Diben, in capital letters, for insecticide, specifically against lawn pests. Filed March 22, 1956, by Wilson & Toomer Fertilizer Co., Jacksonville, Fla. First use not later than June 30, 1955.

Dr. U. T. Greene Promoted by Diamond

CLEVELAND — Promotion of Dr. U. T. Greene to the newly-created post of assistant director of commercial development for Diamond Alkali Co., Cleveland, was announced here recently by C. A. Butler, Jr., director of commercial development for the company. Dr. Greene takes over his new responsibilities following six months' leave of absence for service as director of the Chemical and Rubber Division, Business and Defense Services Administration, U.S. Department of Commerce, Washington.

—A native Clevelander, Dr. Greene returns to the organization which he joined in 1942, when he was appointed chief chemist of Diamond Magnesium Co., organized by Diamond Alkali to operate a government-built magnesium plant located adjacent to Diamond's Painesville Works.

Program Set for Pacific Northwest Industry Conference

PORTLAND — The program has been announced for the fourth annual meeting of the Pacific Northwest Agricultural Chemicals Industry Conference to be held in Portland Jan. 23-25. The conference is being held under the auspices of the Western Agricultural Chemicals Assn.

A meeting with entomologists of the Pacific Northwest Vegetable Insect Conference in the Imperial Hotel is on the morning schedule Jan. 23.

The afternoon program, in the Benson Hotel, will be opened with remarks by A. F. Kirkpatrick, American Cyanamid Co., president of the Western Agricultural Chemicals Assn.

This will be followed by a panel discussion on the onion maggot. Panel members will be Dr. H. H. Crowell, Oregon State College; D. G. Finlayson, Dominion Entomology Laboratory, Kamloops, B.C., and Dr. A. J. Howitt, Western Washington Experiment Station.

The remainder of the Jan. 23 afternoon program will include a film, "Herbicides Pay Off," and talks by two Oregon State College staffers—"The Future of Chemical Weed Control" by W. R. Furtick and "Insect Pests of Legume Seed Production" by E. A. Dickason.

The Jan. 24 morning program in the Benson Hotel will include "Extension Is Your Business Too," R. W. Every, Oregon State College; "Effects of Anticholinesterase Insecticides on the Human," Dr. T. A. Loomis, University of Washington; "Granular Insecticides," E. L. Gooden, Insecticide Chemicals Research Service, Agricultural Research Center, Beltsville, Md.; a film, "Powdery Mildew," and and open forum and business meeting.

A meeting with entomologists of the Pacific Northwest Cooperative Spray Project at the Imperial Hotel is scheduled the morning of Jan. 25.

AT MISSISSIPPI CONFERENCE—Officers elected at the third annual Mississippi Insect Control Conference at Mississippi State College held Jan. 10-11, are seen in the top photo. They are, left to right: Ed Broadus, Jackson, Miss., president; Dr. M. E. Merkl, Stoneville, Miss., vice president, and A. G. Bennett, State College, secretary-treasurer. In the lower picture, Prof. R. W. Harned, Washington, D.C. (left) receives the distinguished service award of the Mississippi Entomological Assn. Presenting the award to Prof. Harned is Dr. Clay Lyle, dean and director of the division of agriculture at Mississippi State. Prof. Harned was honored as the "father of professional entomology in the South," and has for several decades been a leader in cotton insect control research.

MISSISSIPPI CONFERENCE

(Continued from page 1)

vil control during 1956. "Applied at one-fourth to one-half pound per acre, it gave excellent results in all locations," he said.

Dr. Johnnie Johnston of the National Cotton Council at Memphis, Tenn. agreed that boll weevils have become resistant to some insecticides. He pointed out that the chemical industry cannot continue to produce new chemicals as fast as boll weevils become resistant. A control program must be developed that is not dependent on chemicals alone, he said. Early stalk destruction was cited as the most important single item in such a program.

In reporting highlights of cotton insect control research at the Stoneville Branch Station, Dr. Merkl indicated that Thimet and Bayer 19369 used as a systemic seed treatment, gave excellent control of thrips, made for faster early growth of the cotton plant, but at the same time retarded fruiting and apparently lowered germination of seed.

A. L. Hamner, entomologist at Mississippi State College, said that treating to protect blooms after the first four or five weeks of blooming may not be profitable.

Early season boll weevil control is especially important, he said. Around 89% of the crop is set from blooms in the first five weeks or less of blooming. He did indicate that treatment should be continued to protect bolls set from these early blooms.

Another highlight of the conference was the presentation of the Mississippi Entomological Society Distinguished Service Award plaque to Prof. R. W. Harned of Washington, D.C. The presentation was made for the society by Dr. Clay Lyle, dean and director, Division of Agriculture at Mississippi State College.

In making the presentation Dr. Lyle cited the more than 50 years of service to entomology by Professor Harned, who is known as the father of professional entomology in the South. For several decades Professor Harned has been a leader in State and Federal cotton insect control research.

A panel of commercial pest control operators indicated that resistance of roaches, especially to the chlorinated hydrocarbons, is a major problem with them. Where chlordane and DDT formerly gave almost absolute control, their effect on some species has apparently diminished.

Officers of the Mississippi Entomological Society, elected during the annual meeting are Ed Broadus of Niagara Chemical Division, Jackson, president; Dr. Merkl, vice president, and A. G. Bennett, leader extension entomology, State College, secretary-treasurer.

Directors are Gene Merrill, entomologist with General Chemical Co., Greenville; C. A. Wilson, entomologist at Mississippi State College; W. R. Smith of Shell Chemical Co. at New Orleans, and David Young, assistant extension entomologist, immediate past president.

Panel participants during the two-day meeting included: R. E. Duggan, chief chemist, Food and Drug Administration, New Orleans; Dr. Johnnie Johnston; Dr. Randle Furr, entomologist at the Stoneville Station; Mr. Hamner; O. T. Guice of the State Plant Board; Dr. Merkl; Jim Lanier of Chemagro, Thibodaux, La.; Mr. Broadus; Mabry Anderson of Clarksdale; L. T. Wade of Rolling Fork; Vic Sutter of Greenwood and Lee Abide of Greenville, all representing the Aerial Applicators Association; USDA entomologists C. C. Fancher, C. D. Gaddis, Hiram Young, T. D. Persons, H. R. Johnston, Jim Cowger all of Gulfport; Dr. S. E. Jones of Brownsville, Tex., J. W. Ingram of State College; R. C. Morris of Stoneville; and representing the U.S. Public Health Service, John Kilpatrick of Savannah, Ga.; pest control operators J. C. Redd, Charles Treadway and A. H. Jackson all of Jackson and Paul Adams of Alexandria, La.

Oregon Sprayers and Dusters to Meet

PORTLAND, ORE.—Agricultural sprayers and dusters in Oregon will have opportunity to broaden their knowledge of weed and insect controls at the sixth annual Oregon Agricultural Chemical Applicators short course to be held Jan. 28-Feb. 1 on the Oregon State College campus at Corvallis. The state department of agriculture will co-sponsor the event with the college.

This year's short course, taking a completely professional approach, will present basic spraying information to ground and aerial operators as well as county weed supervisors, state highway department sprayers and industry representatives. College staff members will present material.

F. E. Price, state college experiment station and extension service director, and J. F. Short, director of the state agriculture department, will open the course at 10 a.m. Jan. 28.

Topics will include elements of crop production, soils and herbicides. Discussion will follow featuring the makeup of plants and weed control in farm crops. Operators will be instructed in identifying plants both on the ground and from airplanes.

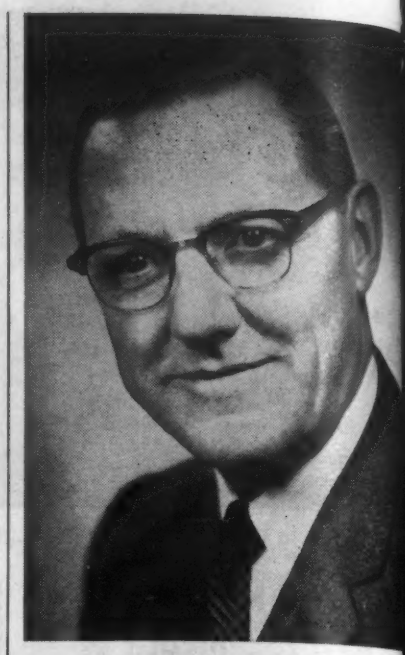
A following session will stress weed control in horticultural crops. Operators will receive certificates for completion of the course.

Other sessions will be devoted to license information for application of weed killers. Examinations for these licenses will be conducted in conjunction with the school.

Ragweed Infestations Reported in Oregon

PORTLAND, ORE.—Oregon's State Board of Health has warned that ragweed is now out of control in Umatilla and Josephine counties in that state. Announcement was made by Dr. N. E. Irvine, Lebanon, Ore., at the board's annual meeting in Salem. The board urged that the legislature provide funds to combat the weed.

Dr. Irvine stated that studies show the Milton-Freewater area and portions of Josephine County are too heavily infested for practical control. He indicated that large infestations of the weed have been reported in Marion and Clackamas counties with lesser concentrations in Polk, Benton, Washington, Yamhill, Columbia, Morrow and Jackson counties.



Emil C. Gerdes

Emil C. Gerdes In New Diamond Black Leaf Post

CLEVELAND — Appointment o Emil C. Gerdes, of Des Moines, Iowa as manager of commercial product for Diamond Black Leaf Co., Cleve land, has been announced by Georg V. Dupont, general manager. Mr Gerdes replaces Dr. James M. Mer ritt, who has resigned.

Mr. Gerdes has been midwestern manager of Diamond Black Lea since December, 1955, when the com pany purchased the Des Moines pest icide plant of Geigy Chemical Corp From 1924 to 1946, he was assistan to the executive vice president o Chittenden & Eastman Co., Burling ton, Iowa, furniture manufacturer and distributors, then became a dis tributor of agricultural and othe chemicals at Burlington.

In 1948, Mr. Gerdes joined Geig Chemical Corp., serving as midwest ern district manager of its agricul tural chemicals division. He held thi position until December, 1955, whe he joined Diamond Black Leaf.

Two Appointed by Kelly-Western

SALT LAKE CITY—Two appoint ments have been announced by th Kelly-Western Seed Division of Uta Cooperative Assn.

Bernard R. Ellison, former Uta state weed and seed supervisor, ha joined the division and will conduc field and laboratory research an quality control tests on Pax crabgras and soil pest control and alfalfa see production.

W. A. McKay, formerly with Acm Quality Paints of Detroit, began wit the division Jan. 2 and is coordinatin nationwide sales of Pax crabgras control.

Mr. Ellison, who is working on h doctorate at the University of Mich gan, was awarded a B.A. degree f the University of Utah, and an M.A degree at Michigan State Universit He formerly taught two years a North Carolina State College fo Teachers. He was employed at th MSU Experiment Station for work o plant diseases and genetics, and lat joined the staff at North Carolin State College of Engineering an Agriculture researching on diseases o soybeans, cotton and tobacco.

Mr. McKay was formerly weste district sales representative at Acm where he was employed 10 years.

HORTICULTURE BOOK

AMES, IOWA—Harry E. Nichol professor of horticulture, and E. Haber, head of the department horticulture, both of Iowa State C lege, are authors of the third editi of "Laboratory Exercises in Hortic ture." The workbook has been r leased by the Iowa State Colle Press.

NEMATODE WORKSHOP

(Continued from page 1)

y are widely known as parasites plants. Still, they were first known pests of man and other animals, said. They range in size from 1/50 ¼ inch long, and many are in- ible to the naked eye.

Among the common nematodes e the root-knot, meadow, stylet, n and ring, lance, bulb and stem, gger and stubby-root, and the o-important potato nematodes, lden and potato rot. Only a few the several hundred known par- ites have as yet been associated th plant diseases, Mr. Jenkins id, therefore, it is likely that ore species will be listed as ma- r crop pests as additional re- arch is done.

Symptoms are seldom specific for natode injury, the speaker de- red. Retarded growth and general cline are factors, but difficult to ognize. More striking symptoms chlorosis or yellowing, wilting, iciency symptoms, leaf discolora- n and root damage. Mr. Jenkins cluded with a description of the natodes common in the North- t, including root-knot and the tformers. These two groups are own as sedentary types because e within a root they do not move ut. Also there are endoparasites, nematodes, which enter the host feed from within.

Means of controlling nematode nage were cited by W. F. Mai, fessor of plant pathology, Cornell iversity, Ithaca. They include: 1) Crop rotation, the most widely d and effective method. One lim- tion, however, is that there usual- is more than one nematode pest sent in the soil of any field, and is likely that each one of these cies varies with respect to sus- tibility to the various crops in rotation.

2) Trapcropping, or the growing a particular, susceptible crop in sted land until a large percent- of the nematodes are present in roots, and then destroy the crop.

(3) Hatching agents. The roots a number of plants give off a emical substance which causes rvae to hatch from the cysts rmed by certain nematodes. It ght be possible to isolate and ncentrate these chemicals, and the application of such a chem- l to the soil the unprotected matodes caused to emigrate from e cysts would die more rapidly.

4) Use of resistant crop varieties.
5) Flooding of the soil.
6) Dry heat.
7) Electrocution.
8) Steam heat.
9) Soil fumigation.

reparation of the soil prior to igation was discussed by M. T. chinson, associate research spe- ist, department of entomology, gers University, New Brunswick, . There are several reasons for r cultivation, he said. (1) Living residues can harbor nematodes protect them from the fumigant. Crop residues can allow a too- d escape of fumigants from the and can hinder fumigation by umulating behind the cultivator nks. (3) Clods of earth cannot be etrated by the fumigant.

o prepare for fumigation, the soil t be thoroughly worked to a h of from eight to ten inches ral weeks before treatment, Mr. chinson said. Temperature and sture requirements are inter-re- d, he added. In warm, moist soils atodes are most susceptible to action of fumigants and the fum- ts can penetrate readily between around the soil particles. By rast, in cool, wet soils, fumigants trate only slowly and do not e the soil readily.

oil temperatures anywhere from 50 to 80° F. are recommended with most fumigants, he said. Soil moisture at the time of fumigation should be at a suitable level for planting throughout the depth of the soil to be fumigated. Moist soils can be packed or rolled more readily after fumigation to give a seal that prevents a too-rapid escape of the vapors.

C. W. McBeth, head of the department of nematology, agricultural research division of the Shell Development Co., Modesto, Cal., described the use of D-D and 1,2-dibromo-3-chloropropane (nemagon) as soil fumigants. Volatile materials such as these must be injected at least 6-8 inches in the soil to prevent excessive loss through the surface and to aid in deeper penetration of the gas, Mr. McBeth declared. After injection, the soil surface should be smoothed and compacted to help seal the gas in, it was noted.

For proper use and effectiveness of fumigation, the various soil characteristics such as moisture equivalent and surface areas must be known, the speaker said. For example, a sandy loam may have a moisture equivalent of 8-10% while a clay may have 30% or more. Roughly, it can be said that for every 1% increase in moisture equivalent, the dosage of D-D should be increased by one to two gallons per acre.

A 20-gallon dosage of D-D when completely volatilized yields 660 cu. ft. of vapor, Mr. McBeth said, while the amount of gas generated by one gallon of nemago is 26 cu. ft. However, the vapor pressure of nemagon is only .8 mm. while D-D is 29 mm.

The mode of action of soil fumigants on nematodes is not known, but it is determined that nemagon works more slowly than D-D. Specific uses of D-D include tobacco, Irish potato, sugar beets, onion and garlic. Treatment of living plants is the main use for which nemagon has a decided advantage over D-D. At present, nemagon looks very promising as a side dress for tree and vine crops such as grape, citrus, peach, walnut, almond and olive. Side dressing of annual crops does not appear practical as a substitute for a good pre-plant fumigation, he declared. Peaches, walnuts, carrots and cotton have been planted immediately following fumigation without serious injury. Strawberries, blackberries, roses and several other ornamentals have been treated with nemagon with promising results and it is used as a drench on turf with good results, the speaker said.

Various nematocide application equipment was described by E. F. Feichtmeir, manager of the product application department of the agricultural research division, Shell Development Co., Denver. They include: (1) The pressure orifice system, generally tractor-mounted with a tool bar. A pump may be mounted so as to be driven from a belt drive attachment or power take-off shaft. (2) Gravity system with metering device. Gravity kits are easily adapted to operate with plow, disc or chisel tools since there is no need for pump power nor extensive piping. (3) Gravity head supply vessel with land wheel drive pump. This type of drive eliminates the tractor speed variable and may be readily attached to cultivator tool bars. (4) Granule applicators.

Many of the existing fertilizer, small seed and chemical distributors that are normally designed for surface or shallow deposit may be converted for application at greater depth by using proper chisels. It is possible to formulate the necessary dosage of nemagon on 25 to 100 lb. an acre of granular material, thus reducing the amount of bulk handled, he said.

The nematode market as pertaining to the benefits and economics of soil fumigation and the distribution of plant parasitic nematodes in the northeast was described by A. L. Taylor, principal nematologist in charge of the section of nematology, agricultural research service, USDA, Beltsville, Md.

J. J. Lawler, sales manager of the agricultural chemical sales division, Shell Chemical Corp., New York, welcomed the assembly.

Sessions were concluded Jan. 17 with the presentation of certificates by Fred W. Hatch, manager of the agricultural chemical sales division of Shell. Assisting on the program were G. Fassuliotis, nematode research laboratory, USDA, Seaford, N.Y.; M. B. Harrison, assistant professor of plant pathology, Cornell University; V. H. Dropkin, USDA nematologist, Brookhaven National Laboratory, Upton, N.Y., and Stan H. Benedict and Max M. Lowish of Shell's agricultural chemical sales division, New York.

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Quarantine Hearings Set By USDA for Control of Nematode, Witchweed

WASHINGTON—Two public hearings at which interested persons may appear and express their views on proposals to quarantine the states of North and South Carolina because of the occurrence there of a newly-discovered disease of corn caused by "witchweed," and further to quarantine the states of Missouri, North Carolina and Tennessee because of the discovery in these three states of the "yellow dwarf" disease of soybeans, will be held in Washington, D.C., on Jan. 30 and 31 respectively, the U.S. Department of Agriculture has announced.

The hearing on the proposal to quarantine North and South Carolina because of the new corn disease, a species of Striga commonly known as "witchweed," begins at 10 a.m. on Jan. 30 in room 218A of the Administration Bldg., U.S. Department of Agriculture, 12th Street and Independence Ave. S.W., Washington. The second hearing, relating to the "yellow dwarf" disease of soybeans caused by the soybean cyst nematode, is scheduled at 10 a.m. on Jan 31, also in room 218A of the Administration Bldg.

Witchweed, the cause of the new corn disease, is an insidious weed that destroys corn and other crops of the grass family by penetrating their roots and depriving them of nutrients and water. It has been discovered in localized areas in Bladen, Columbus, Cumberland and Robeson Counties, North Carolina, and in adjoining Dillon, Horry, Marion and Marlboro Counties, South Carolina. (Croplife, issue of Nov. 5, 1956, page 1.)

The soybean cyst nematode is capable of causing complete destruction of a crop of soybeans. It also parasitizes annual lespedeza and common vetch. The disease caused by this nematode was first called "yellow dwarf" disease in Japan, Korea and Manchuria, where the nematode has its only known habitat outside of the U.S. In this country, the pest has been found in Pemiscot County, Missouri; New Hanover and Pender Counties, North Carolina, and Lake County, Tennessee.

LARGER FARMS

AMHERST, MASS. — The outlook for Massachusetts farms in the coming year is a trend toward larger more highly mechanized farms, spelling trouble for the less efficient farmer, says George W. Westcott, extension economist at the University of Massachusetts.

Soybean Nematode in North Carolina Alerts USDA Quarantine Group

WASHINGTON—Discovery of one of the nematode family in the soybean area has cut out another big chore for the agricultural chemical industry to halt this pest which in the past has been more widely known for its presence in the Long Island potato area.

USDA specialists in nematology at the Beltsville research center say that the first technique is generally to quarantine the infested area to prevent spreading to other producing regions. In the case of the nematode affecting the soybean crop, it is said that the parasite is spread generally by transmission in flood waters from one region to another.

They also report that there has been successful treatment of the infested soil through the use of D-D fumigant.

USDA officials say that the incidence of use varies on the value of the crops being cultivated on the soil. The product is a volatile one and is not carried over from one crop year to another. Officials are hopeful that in the case of the soybean cyst nematode it will be a helpful and successful tool in combating this outbreak before it is found in other soybean areas.

Thus far this nematode has not been found in the main soybean belt although it has been detected and identified in two counties of North Carolina where soybeans have become a crop of increasing importance both for the local feed industry use and for export.

Chemical industry attention might be sharpened to this latter factor since it is understood that many western European nations which have been big importers of U.S. soybeans maintain local quarantines on imports of nematode-infested products, and news of infestation of North Carolina areas by the nematode might threaten the export market potential of this crop.

Differing from the golden nematode which has been a major pest in Long Island potato areas where there is a viability of as long as 15 years, it is believed that the soybean nematode has a total viable life of not more than 3 to 4 years. If this is correct, it would reduce the length of controls necessary to stamp out the infestation.

Control which is generally effective is the requirement that farmers stop production of the host plant which together with certain cultural practices and application of known effective economic poisons will stamp out the attack of this pest.

Drouths, Insects in New Mexico Farm Pattern

ROSWELL, N.M.—The year 1956 was a mixed blessing to farmers of New Mexico. They made more money than in 1955, or at least the gross income was higher by about $11 million. However production and living costs were higher, so the net profit may have been even less.

It was a year of drouth, insect infestations and a change in the ratio of different crops. The rising cotton price accounted for most of the total increase in income. Hay also increased, while many other crops declined.

Insects were bad in spots, and the alfalfa aphid alone cost millions of dollars. At least three million dollars damage was done in the Pecos and Rio Grande valleys.

The pink bollworms did for cotton what the aphids did with alfalfa, though the worms were confined to more localized areas. The highest infestation of pink bollworms was found in the Rio Grande Valley in the southern part of the state.

Crops which lost ground were beans, grain sorghums and apples.

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